

## Utilitarian Information Works - Is Originality the Proper Lens?

Dana Beldiman

*Carroll, Burdick & McDonough LLP; Bucerius Law School Hamburg, Germany; U.C. Hastings; Riga Graduate School of Law, Riga Latvia*

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## ARTICLES

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DR. DANA BELDIMAN\*

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\* Dr. Dana Beldiman, M.A., J.D., LL.M. (Intellectual Prop.), is a partner with the San Francisco law firm of Carroll, Burdick & McDonough LLP and specializes in international intellectual property law and international transactions. Dr. Beldiman is a visiting professor at the Bucerius Law School, Hamburg, Germany, an adjunct professor at U.C. Hastings, San Francisco, California, and the Riga Graduate School of Law, Riga, Latvia.

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### ABSTRACT

As the information society advances, vastly increased numbers of utilitarian information works (UIW) are being produced. In general, these works are deemed protected by copyright law, even though the philosophical underpinnings of copyright law clash with the attributes of UIW. This Article examines the cause for the uneasy relationship between UIW and the concept of originality.

Part I discusses the role of information and UIW as one of the core wealth-producing assets of the knowledge-based economy. This economy is characterized by a rapid pace of innovation, which in turn, requires unrestricted access to information. Part II examines copyright law as it relates to protectability of fact-intensive works. In recognition of the global nature of the issue, the law of the United States, as a representative common law jurisdiction, and the law of Germany, as a representative civil law jurisdiction, are discussed. Relevant authorities from other jurisdictions are mentioned as well. Part III points to the tension between UIW and the concept of originality as the sole standard for evaluating copyright protectability. While originality encourages subjective diversification of creation, the functional nature of UIW constrains expression by requiring uniformity and conformity. Evaluating copyrightability of UIW through the lens of originality alone

may lead to results that adversely impact the flow of information required for innovation. Part IV concludes with possible alternative approaches that would avoid jeopardizing the free flow of information.

## INTRODUCTION

We live in an information society. Many of the most valuable assets in today's economy come in the form of information products. It has become the practice to claim copyright protection for virtually every piece of writing or its electronic equivalent, created by knowledge professionals—from the iPod version of train schedules<sup>1</sup> to instruction manuals for use of motorized saws<sup>2</sup> to spare parts numbering systems.<sup>3</sup> As a result, copyright law may be called upon to operate as gatekeeper to the very building block of our society—information.

This Article examines the tension between the mechanism by which copyright protection is evaluated and the utilitarian nature of works that serve the information society. It emphasizes the fact that copyright law encourages diversification through individuality, originality, and deviation from the routine, while the functional nature of utilitarian works dictates uniformity and conformity, rendering the individuality of authorial input irrelevant.

It is posited that evaluation of copyrightability through the lens of originality cannot capture the utilitarian functional nature of certain information works, even though utility is their *raison d'être*. Originality further ignores the broader economic impact of protectability, which in a knowledge-based economy (KBE) is of critical importance. As a result, the use of originality as the sole standard for determining protectability risks obstructing the flow of information necessary for innovation, causes waste of resources, and adversely impacts competition.

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1. Posting of Nicholas Deleon to CrunchGear, <http://www.crunchgear.com/2008/11/05/berlin-metro-claims-copyright-over-iphone-timetable-application> (Nov. 5, 2008).

2. Bundesgerichtshof [BGH] [Federal Court of Justice] Jan. 28, 1993, *Gewerblicher Rechtsschutz und Urheberrecht* [GRUR] 34 (F.R.G.).

3. *Toro Co. v. R & R Prods. Co.*, 787 F.2d 1208 (8th Cir. 1986).



## PART I

*A. Information, Utilitarian Information Works, and the Knowledge-Based Economy*

Utilitarian information works (UIW) are products of human creative expression, whose *raison d'être* is performance of concrete, useful functions.<sup>4</sup>

Despite their utilitarian nature, these works fall under the category of “literary” works under the Berne Convention<sup>5</sup> and “writings” under the U.S. Constitution.<sup>6</sup> Scholars and courts have always viewed such works as borderline protectable, placing them, at varying times, either above or below the protectability threshold. Yet, the issue has never received a great deal of attention, possibly because of its limited overall significance. This has now changed. UIW form the core of the KBE.<sup>7</sup> This fact prompts a re-evaluation of the extent to which copyright law should apply to protect UIW.

*B. The Role of Information Works in the Knowledge-Based Economy*

In the pre-digital age, the economic role of copyrightable works was relatively limited. The technologies available for production and

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4. *E.g.*, BGH GRUR 1993, 34 – Bedienungsanweisung (instructions for use of a motorized saw); *Toro Co.*, 787 F.2d 1208 (component part lists); Joined cases C-241/91 P & C-242/91 P, *Radio Telefis Eireann (RTE) and Indep. Television Publ'ns Ltd. (ITP) v. Comm'n of the European Cmty.* (“Magill”), 1995 E.C.R. I-00743 (TV schedules); Bundesgerichtshof [BGH] [Federal Court of Justice] Jul. 7, 1998, *Gewerblicher Rechtsschutz und Urheberrecht [GRUR]* 916 (F.R.G.) – *Stadtplanwerk Ruhrgebiet* (digital geographic base maps); *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977 (7th Cir. 1997) (taxonomies); *BUC Int'l v. Int'l Yacht Council Ltd*, 489 F.3d 1129 (11th Cir. 2007) (yacht sale listings); C-203/02, *British Horseracing Board Ltd. v. William Hill Org. Ltd.*, European Court of Justice [ECJ] Judgment 9 (Nov. 2004) (horse racing information). These works are referred to as “utilitarian” or “functional.” Functional means: “designed or developed chiefly from the point of view of use” also “performing or able to perform a regular function.” Merriam-Webster Online Dictionary, [www.merriam-webster.com/dictionary/Functional](http://www.merriam-webster.com/dictionary/Functional) (last visited Oct. 16, 2009). Functional works, for the present purpose, are works whose function it is to fulfill a given specific, concrete, practical and useful task. *Baker v. Selden*, 101 U.S. 99, 104–05, (1879); *see also* 2 PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT, § 10.5, 10:77 (3d ed. 2007); Pamela Samuelson, *Questioning Copyrights in Standards*, 48 B.C. L. REV. 193, 211 (2007).

5. Berne Convention for the Protection of Literary and Artistic Works, art. 2, Sept. 9, 1886 (last revised at *Paris* July 24, 1971).

6. The U.S. Constitution grants Congress the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors...the exclusive Right to their respective Writings.” U.S. CONST. art. I, § 8, cl. 8.

7. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

distribution of creative works were costly and cumbersome.<sup>8</sup> Creation of protectable works occurred primarily by way of individual effort. As a result, the risk of an inappropriate decision on protection had only insignificant economic ramifications.

With the advent of digital technology, the potential impact of copyright protection has changed. Information that previously came in printed form was digitized. With reproduction and circulation facilitated by technology, access to information became widespread. This led to the creation of an increasing number of works,<sup>9</sup> which, in turn, fueled the creation of works in even greater numbers. Information works have now become the primary products of the KBE. They are created by trained professionals, or “knowledge workers,”<sup>10</sup> who, unlike their counterparts in agricultural or manufacturing economies, produce goods by working with their minds.<sup>11</sup>

New types of expressive works have emerged to meet the specific realities of the KBE. They have come to perform the “work” of the information society;<sup>12</sup> from TV program schedules to DNA sequences to software programs that run the space shuttle, these UIW lie at the core of the KBE and have a direct and powerful influence on society’s aggregate economic performance.<sup>13</sup>

8. Jerome Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 VAND. L. REV. 51, n.334 (1997) (citing Henry H. Perritt, Jr., *Tort Liability, The First Amendment, and Equal Access to Electronic Networks*, 5 HARV. J. L. & TECH. 65, 68–69 (1992) (discussing the role of the “modern print publisher”)).

9. For example, the world’s largest particle accelerator Large Hadron Colliders experiment at the European Council for Nuclear Research (CERN) is to produce petabytes (a petabyte is one quadrillion bytes) of raw data each year, data that will be pre-processed, stored, and analyzed by teams of thousands of physicists around the world, a process that will generate even more data. DON TAPSCOTT & ANTHONY WILLIAMS, WIKINOMICS: HOW MASS COLLABORATION CHANGES EVERYTHING 159 (2006).

10. Term first used in PETER DRUCKER, THE EFFECTIVE EXECUTIVE (1966). Knowledge workers include professionals of all kinds including scientists, engineering and accounting professionals, and scholars.

11. See Kenneth Carlaw et al., *Beyond the Hype: Intellectual Property and the Knowledge Society/Knowledge Economy*, 20 J. ECON. SURVS. 633, 660, 669 (2006), available at [http://www.econ.canterbury.ac.nz/personal\\_pages/paul\\_walker/pubs/beyond\\_hype\\_joes.pdf](http://www.econ.canterbury.ac.nz/personal_pages/paul_walker/pubs/beyond_hype_joes.pdf) (analogizing to the period of the Industrial Revolution in terms of innovation culture. The difference lies in technologies, the relative mix of land, labor, capital, and knowledge.).

12. UIW have “an instrumental role, in accomplishing the world’s work.” Lotus Dev. Corp. v. Borland Int’l, 49 F.3d 807, 819 (1st Cir. 1995) (Boudin, J., concurring).

13. Danny Quah, *Digital Goods and the New Economy*, LSE Econs. Dep’t (2002), available at [http://ifestos.teilar.gr/index.php?option=com\\_docman&task=doc\\_view&gid=7&Itemid=27](http://ifestos.teilar.gr/index.php?option=com_docman&task=doc_view&gid=7&Itemid=27); Carlaw et al., *supra* note 11, at 651–52.

### C. *The Critical Need for Information*

The essential ingredient of UIW is information—it operates as the building block of the KBE.<sup>14</sup> Information is recombinant,<sup>15</sup> i.e., it can be used, re-used, processed, combined, and cumulated in a way that gives rise to new, increasingly complex, and useful combinations of information<sup>16</sup> that fulfill practical needs, solve problems, or improve upon existing solutions. Simply stated, information becomes innovation.<sup>17</sup> As a result, information is the principal wealth-generating asset in a KBE.<sup>18</sup>

Information configured in such a way that it is marketable becomes an information product or work.<sup>19</sup> The value of such products in the market derives from their practical utility. In order to achieve their intended utility, information works must be created in accordance with certain pre-established objective rules as to their form, order, structure, precision, and completeness.<sup>20</sup> The creative process is therefore subordinated to the works' functionality.

More than seventy percent of the work force of developed countries currently consists of knowledge workers.<sup>21</sup> They produce information products. In other words, a vast operation of “manufacturing” utilitarian

14. Information products are the predominant products in an information society. The economy depends on information as its building block. Inventions rely upon building blocks; discoveries almost necessarily will be combinations of what, in some sense, is already known. *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

15. The term is borrowed from recombinant DNA. As recombinant DNA allows genes from one chromosome to be re-combined with those of another, pieces of information can be “re-combined to create new information.” Quah, *supra* note 13, at 19.

16. *Id.*

17. See generally John Perry Barlow, *The Economy of Ideas: Selling Wine Without Bottles on the Global Net* (1994), available at <http://homes.eff.org/~barlow/EconomyOfIdeas.html>.

18. “We are now an information society in a knowledge economy.” Carlaw et al., *supra* note 11, at 633, 634, 651–52, 670; Quah, *supra* note 13, at 19. The term was first used in PETER DRUCKER, *THE AGE OF DISCONTINUITY* (1969), where “Knowledge Economy” appears as the heading to Chapter 12; see also Note, *Antitrust and the Information Age: Section 2 Monopolization Analyses in the New Economy*, 114 HARV. L. REV. 1623, 1628, 1635 (2001); see generally ALVIN TOEFFLER, *THE THIRD WAVE* (1980).

19. The term “utilitarian information product” considers the work from the market perspective; the term “utilitarian information work” (UIW) considers the work from the copyright perspective. For present purposes, they are used interchangeably.

20. A telephone directory, for instance, must provide telephone numbers in organized fashion so they can be retrieved.

21. “More than 70 percent of new jobs created since 1998 in the U.S. require significant abstract thinking and judgment.” Marla Capozzi, *Knowledge Management Architectures Beyond Technology* (2007), available at [http://www.firstmonday.org/issues/issue12\\_6/capozzi/index.html](http://www.firstmonday.org/issues/issue12_6/capozzi/index.html).

information works is under way. The creative effort supporting the KBE's scientific and technological innovation demands increasingly large quantities of information. The accelerated pace of innovation requires information to be available in its most "fluid" (accessible) form. Restricting the flow of information can have a detrimental impact on economic and technological progress.<sup>22</sup>

Copyright protection, when applied to UIW, has the ability to restrict the flow of information.<sup>23</sup> The extent to which copyright law can effectively function as a gatekeeper of information in a KBE must therefore be re-examined from the perspective of ensuring a predictable and sufficient flow of information.<sup>24</sup>

#### *D. Possible Approaches to Re-Examining the Relationship between Copyright and Utilitarian Information Works*

The relationship between UIW and copyright has always been an uneasy one. Copyright encourages subjective diversification, while UIW must reflect reality in an objective manner.<sup>25</sup> At the level of protectability, couching UIW into the evaluation mechanism intended for subjective expression can give rise to distorted results. Other aspects of copyright law are also at odds with the requirements of UIW. Technological protection measures coupled with anti-circumvention laws can block access to information;<sup>26</sup> the broad scope of derivative rights conflicts with the need for incremental improvement of existing works;<sup>27</sup> and collaborative creation is rendered difficult by the absence of parameters for defining the contours of successive creations.<sup>28</sup> All of these aspects tend to inhibit the free flow of information.

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22. See Carlaw et al., *supra* note 11, at 659.

23. Application of DRM and anti-circumvention laws have had a further limiting effect. See generally Dana Beldiman, *Copyright and the Challenges of Digital Age—Can All Interests be Reconciled*, in LEGAL ISSUES IN THE GLOBAL INFORMATION SOCIETY 125 (Dennis Campbell & Chrysta Báň eds., 2005).

24. "It is important that we undertake robust analysis of whether IP protection facilitates or restricts the flow of new innovations and creative activities in twenty-first century societies." Carlaw et al., *supra* note 11, at 659.

25. "Functional works depend for their value primarily on the ingenuity, accuracy and efficiency—the utility—of their underlying system, concept or method." 2 GOLDSTEIN, *supra* note 4.

26. Pamela Samuelson, *Mapping the Digital Public Domain*, 66 LAW & CONTEMP. PROBS. 147, 160–63 (2003).

27. See generally Dennis Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 CONN. L. REV. 439 (2003).

28. DANA BELDIMAN, *FUNCTIONALITY, INFORMATION, AND INFORMATION WORKS* (Yorkhill Law Publishing, Salzburg, Austria 2008).

This Article is but one step toward a more comprehensive solution for easing the flow of information. It examines the tension between UIW and the mechanism by which copyrightability is evaluated. The analysis will focus on the fact that in UIW, expression is constrained by the works' utilitarian functionality. This Article argues that originality is not a good fit as standard for evaluation of copyrightability of UIW. Originality seeks subjective diversification and deviation from the routine. Expression of UIW, on the other hand, must follow the dictates of uniformity and conformity, and must, accordingly, subordinate to their utilitarian function. Authorial individuality is, for the most part, irrelevant. Originality being the only criterion of protectability, copyright law remains blind to the economic impact of protectability, in particular as to non-creator stakeholders.

The author posits that evaluating copyright protectability through the lens of originality does not capture the functional nature of UIW. Evaluation through this lens may result in obstruction to the flow of information necessary for innovation, in waste of resources and in an adverse impact on competition. While this thesis constitutes a departure from traditional copyright doctrine, changed times and circumstances prompt consideration of new approaches.

Finally, it must be kept in mind that we live in a global world. Legal solutions must have universal applicability across legal systems. In this spirit, this Article examines legal authorities from the United States, a significant representative of copyright law, and from Germany, a significant representative of author's right law, and refers to authorities from other jurisdictions as well.

## PART II

### *A. Copyright Protection of UIW*

At present, copyright presumptively covers all materials that are expressed in digital form, regardless of their nature.<sup>29</sup> Yet, even a cursory look at the values upon which copyright law is predicated reveal a tension with UIW.

Copyright law is designed to encourage the production of abundant

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29. With the advent of digital technology, the scope of "writings" has been expanded to include "writings" in computerized format, i.e., bitstrings. Quah, *supra* note 13, at 4. Thus, copyright now presumptively covers all material that can be expressed in digital form, regardless of its nature.



information with the widest possible differentiation.<sup>30</sup> This goal is achieved by rewarding even minimal differences from prior works, each distilling the individual author's perception of reality.<sup>31</sup> Value is placed on individuality, originality, and deviation from the routine. A creator is encouraged to be imaginative and fanciful and inject his personal imprint into a work. In the realm of literary artistic works, this results in many protectable versions of a common plot, theme, situation, or landscape; each reflect the creator's unique personality and subjective imagination.<sup>32</sup> Diversification through individuality is an appropriate measure for evaluating the protectability of such works.

UIW, on the other hand, are governed by entirely different rules. Their sole *raison d'être* is fulfillment of their functionality. Their functional nature requires them to adhere to physical realities and established formulae;<sup>33</sup> it demands uniformity and conformity. Deviation, fanciful, and imaginative treatment are not virtues in the creation of UIW; to the contrary, they are fatal to the work's utility.<sup>34</sup> For this reason, diversification through individuality is an uneasy measure for evaluating the protectability of such works.

### 1. Standards for Protection Applied to UIW

The tension between the conceptual underpinnings of the originality doctrine and UIW has long been a challenge to copyright law. Works of a fact-intensive nature, such as directories, databases, and other compilations of information, do not fit the mold of conventionally copyrightable works such as fictional writings, paintings, and musical compositions.<sup>35</sup>

In deciding whether to grant or withhold copyright protection when it comes to UIW, two competing policy concerns come into play. The first is that courts are generally inclined to reward work with a view to

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30. 1 GOLDSTEIN, *supra* note 4, § 2.15, at 2:179.

31. *Id.*

32. Jerome Reichman, *Computer Programs As Applied Scientific Know-How: Implications of Copyright Protection for Commercialized University Research*, 42 VAND. L. REV. 639, 684 (1989).

33. Such works must adhere to physical realities or to well-known formulae. See 1 GOLDSTEIN, *supra* note 4, § 2.15, at 2:177.

34. Insisting on such treatment would "place a premium on evasion." *Crume v. Pacific Mut. Ins. Co.*, 140 F.2d 182, 185 (7th Cir. 1944), *cert. denied*, 322 U.S. 755 (1944).

35. Originality becomes problematic in factual works, such as telephone directories, maps, and legal forms, that characteristically adhere to physical realities or to well-known formulae. See 1 GOLDSTEIN, *supra* note 4, § 2.2.1, at 2:11.

promoting further creation<sup>36</sup> and to discourage free-riding.<sup>37</sup> The second concern, in tension with the first, is the principle of freedom of facts, information, and ideas, which forms the foundation of a robust public domain and future innovation.<sup>38</sup>

Yet, absent a more specific mechanism to address the competing concerns of incentive and freedom of ideas, copyright protection constitutes a convenient default. The easily manipulable doctrine of originality can be pressured to give rise to doctrines that justify protection of information works under its guise.<sup>39</sup> Thus, at one end of the spectrum, courts have rewarded mere industriousness under the doctrine of the “sweat of the brow,” regardless of the level of originality.<sup>40</sup> In such cases, copyright simply protects the creator’s

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36. Jane Ginsburg, *No “Sweat”? Copyright and Other Protection of Works of Information after Feist v. Rural Telephone*, 92 COLUM. L. REV. 338, 340–41 (1992).

37. Mark Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1043 (2005). This concern also became obvious in the reasoning of the European Court of Justice, Case C-418/01, *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, E.C.J. (decided on Oct. 2, 2003), available at <http://curia.europa.eu/juris/cgi-bin/gettext.pl?lang=en&num=79968997C19010418&doc=T&ouvert=T&seance=CONCL>.

38. Ideas are precluded from protection out of the concern that their protection would preclude, or render too expensive, subsequent authors’ endeavors. William Landes & Richard Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 347–49 (1989).

39. Inclusion is justified by doctrines such as “small change,” see *infra* note 76, “selection and arrangement,” and “judgment and expertise.” See discussion accompanying *infra* notes 183–89. These doctrines have been criticized by commentators. See GERHARD SCHRICKER, *URHEBERRECHT*, Kommentar (3. Ausgabe, C.H.Beck, München 2006) Schricker/Loewenheim, § 2, Rn.38; Ginsburg, *supra* note 36, at 340. Accommodations are made to reflect the purely informational nature of the work and largely occur in the form of limits to the scope of protection. Thus, information works are granted greater leeway in permissible copying. “Similarity of expression may have to amount to verbatim reproduction or very close paraphrasing before a factual work will be deemed infringed.” *Landsberg v. Scrabble Crossword Game Players, Inc.*, 736 F.2d 485, 488 (9th Cir. 1984) (citing 1 MELVIN NIMMER, *NIMMER ON COPYRIGHT*, 2.11[A]–[B] (1968)); *Cooling Sys. & Flexibles v. Stuart Radiator*, 777 F.2d 485, 491 (9th Cir. 1985).

40. The UK and jurisdictions guided by UK precedent protect mere industriousness under doctrines such as “sweat of the brow,” “judgment and experience,” or “labor skill and capital” expended by an author in creating a work. See WILLIAM CORNISH, *INTELLECTUAL PROPERTY, PATENTS, COPYRIGHT, TRADEMARKS AND ALLIED RIGHTS* ¶ 10–08 (4th ed. 2000). Pre-*Feist* U.S. courts have held that “[t]he man who goes through the streets of a town and puts down the names of each of the inhabitants, with their occupations and their street number, acquires material of which he is the author.” *Jeweler’s Circular Publ’g Co. v. Keystone Publ’g Co.*, 281 F. 83, 88 (2d Cir. 1922). Similarly, a telephone white pages directory was original enough for copyright protection because the directory’s author had “solicited, gathered, filed, sorted, and maintained the information” used in the directory, the directory was “derived from information compiled and generated” by the author’s efforts. *Hutchinson Tel. Co. v. Frontier Directory Co.*, 770 F.2d 128, 132 (8th Cir. 1985).

investment, and thus operates as a de facto unfair competition rule.<sup>41</sup> The disadvantage of this approach is that copyright protection is likely to obstruct access to large amounts of facts, information, and ideas, and thus impact innovation.<sup>42</sup>

At the other end of the spectrum, information works have been denied protection for lack of originality.<sup>43</sup> This solution, however, is discomfoting to many courts and scholars as it leaves a “protection gap”<sup>44</sup> and results in perceived unfairness, reward for free-riders, or failure to provide an incentive for further creation. The standards applied in various jurisdictions have fluctuated between these extremes.<sup>45</sup>

The following section discusses how fact-intensive works have been handled under these standards.

Copyright protectability is determined by whether a work displays sufficient originality or individuality. Under German law, the standard for protectability is the presence of “personal intellectual creation.”<sup>46</sup> The fact-intensive nature of works has been taken into account by varying the originality/individuality threshold over time and from one jurisdiction to another. This standard lens applies regardless of a work’s functional nature.

41. Absent specific unfair competition law in the UK, copyright fills this void, as evidenced by the fact that the defendant in such cases tends to be a direct business competitor. CORNISH, *supra* note 40, ¶ 10–09.

42. See NORBERT REICH & HANS W. MICKLITZ, *EUROPÄISCHES VERBRAUCHERRECHT* 267 (4. Auflage, Nomos Verlagsgesellschaft, Baden–Baden 2003).

43. Ginsburg, *supra* note 36, at 340.

44. This “protection gap” is particularly abhorrent to continental European law, which envisions law as an overall structure, which governs all aspects of human behavior. The closest form of protection in the EU would be the database protection under EU Directive 96/9 EC.

45. While UK and Australian law protect industriousness, French law imposes a quantitative standard, requiring an “original or personal character” for protectability, which further implies “differences from prior works or matters, differences that originate in the author’s own efforts.” Jerome Reichman, *Goldstein on Copyright Law: A Realist’s Approach to a Technological Age*, 43 STAN. L. REV. 943, n.51 (1991) (quoting Robert Plaisant, France § 2[1][b], in 1 INTERNATIONAL COPYRIGHT LAW AND PRACTICE (P.E. Geller rev. ed. 1990)). Italian law protects works of a “creative character” and requires that they be “the result of an intellectual effort” although the requisite degree of differentiation from prior works is unsettled. *Id.* When the desire is to limit protection of information works, a heightened standard of qualitative or quantitative creativity is imposed above and beyond pure independent creation. See *id.* at n.75.

46. Urheberrechtsgesetz [UrhG] [Author’s Rights Law of Germany] § 2 ¶ 2. Personal intellectual creation (“persönliche geistige Schöpfung”). While the concepts of originality and individuality do not refer to identical standards, for present purposes they will be treated as roughly equivalent.



*a. Standards in the United States*

In the United States, up to 1991, independent creation was the sole criterion for protection.<sup>47</sup> Protection was granted to information works such as telephone directories,<sup>48</sup> databases,<sup>49</sup> user interfaces,<sup>50</sup> listings of baseball cards,<sup>51</sup> credit rating listings,<sup>52</sup> maps,<sup>53</sup> and others.<sup>54</sup> The Supreme Court decision in *Feist Publications v. Rural Telephone Service*<sup>55</sup> limited this practice by ruling that copyright does not protect the “sweat of the brow” and requiring at least a modicum of creative originality in selection or arrangement. In other words, courts could no longer look to investment of labor and resources alone to constitute originality.<sup>56</sup> Originality had to be found elsewhere; most often it is found in the selection and arrangement of information.

However, as far as the impact on protectability of UIW is concerned, the *Feist* decision may not have been as far-reaching as one would expect. The precise amount of requisite creativity is merely defined as a “slight amount,” even a “crude, humble and obvious”<sup>57</sup> amount. Telephone directories clearly fall below this standard.<sup>58</sup> Apart from telephone directories, however, the manner in which this standard is to be applied is far from clear. A court can easily limit non-protectability to the kind of mechanical selection and arrangement that is dictated by alphabetical, maybe also numerical, order. Not surprisingly, post-*Feist* courts have found information works such as taxonomies,<sup>59</sup> parts

47. The Copyright Act of 1976 imposed a uniform standard of “original work of authorship” in 17 U.S.C. § 101 (1976). Many courts and commentators have construed the 1976 Act definition of compilations to impose the same standard of originality on low and high authorship works. Jane Ginsburg, *Creation and Commercial Value: Copyright Protection of Works of Information*, 90 COLUM. L. REV. 1865, 1895 (1990).

48. *Hutchinson Tel. Co. v. Frontier Directory Co.*, 770 F.2d 128, 132 (8th Cir. 1985).

49. *West Publ’g Co. v. Mead Data Cent., Inc.*, 799 F.2d 1219, 1226–27 (8th Cir. 1986).

50. *Lotus Dev. Corp. v. Paperback Software Int’l*, 740 F. Supp. 37 (D. Mass. 1990).

51. *Eckes v. Card Prices Update*, 736 F. 2d 859 (2d Cir. 1984).

52. *Nat’l Bus. Lists, Inc. v. Dunn & Bradstreet, Inc.*, 552 F. Supp. 89 (N.D. Ill. 1982).

53. *Rockford Map Publishers, Inc. v. Directory Serv. Co.*, 768 F.2d 145 (7th Cir. 1985), *cert. denied*, 474 U.S. 1061 (1986).

54. *E.g.*, *Illinois Bell Tel. Co. v. Haines & Co.*, 683 F. Supp. 1204 (N.D. Ill. 1988), *aff’d*, 905 F.2d 1081 (7th Cir. 1990) (holding copyrightable telephone directory listings where defendant rearranged entries according to address and phone number).

55. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991).

56. Ginsburg, *supra* note 36, at 340.

57. “[E]ven a slight amount will suffice, so that a creative spark, no matter how crude, humble or obvious it might be.” *Feist*, 499 U.S. at 345.

58. *See generally Feist*, 499 U.S. at 340.

59. *Am. Dental Ass’n v. Delta Dental Plans Assoc.*, 126 F.3d 977 (7th Cir. 1997).

numbering systems,<sup>60</sup> technical drawings,<sup>61</sup> used car values,<sup>62</sup> used coin wholesale values,<sup>63</sup> and others protectable.

### *b. Standards in Germany*

Under German law, the principal prerequisite for protection is the presence of “personal intellectual creation.”<sup>64</sup> In the past, German law has differentiated standards satisfying the individuality requirement by categories of works,<sup>65</sup> ranging from simple individuality to an unusually high standard that requires a work to clearly rise above the level of average craftsmanship.<sup>66</sup>

The high standard stems from the area of applied arts and was then broadened to apply to factual works and other categories of borderline

60. *Southco, Inc. v. Kanebridge Corp.*, 390 F.3d 276, 282–83 (3d Cir. 2004).

61. *Gemel Precision Tool Co. v. Pharma Tool Corp.*, 1995 U.S. Dist. LEXIS 2093, 35 U.S.P.Q.2D (BNA) 1019 (E.D. Pa. 1995).

62. *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports*, 44 F.3d 61 (2d Cir. 1994).

63. *CDN Inc. v. Kapes*, 197 F.3d 1256 (9th Cir. 1999).

64. Author’s Rights Law of Germany (Urheberrechtsgesetz) § 2 ¶ 2. Personal intellectual creation (“persönliche geistige Schöpfung”) characterized by Schricker as a cryptic formula, left largely to the courts to interpret. SCHRICKER, *supra* note 39, § 2, Rn.5; see Gerhard Schricker, *Farewell to Level of Creativity*, IIC 1995 Heft 1, 41–48, at 47. This requirement, also referred to as individuality can be viewed as a rough equivalent of originality.

65. THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ, Kommentar § 2, Rn.24–28 (C.H.Beck, München, 2006); SCHRICKER, *supra* note 39, § 2, Rn.74. Thus, scientific works enjoy a very low level of protection as long as they are prepared in commonly used terminology. See, e.g., Bundesgerichtshof [BGH] [Federal Court of Justice] 1984 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 659 (661) (F.R.G.) – Ausschreibungsunterlagen. Utilitarian texts, such as user instructions and representations of technical and scientific nature, are held to a higher standard. See BGH GRUR 1993, 34 (36) – Bedienungsanweisung. As to graphic representations of scientific or technical nature, the law imposes a creativity requirement that is set at the low level of small change, out of concern that otherwise most of these works would be excluded, a result that would go against the legislator’s intent. THOMAS DREIER & GERNOT SCHULZE, URHEBERRECHTSGESETZ § 2, Rn.28; Bundesgerichtshof [BGH] [Federal Court of Justice] 1991 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 529 (F.R.G.) et seq. – Werbepläne.

66. Originally, the term “level of creativity” (“Schöpfungshöhe”) had been reserved to evaluate the protectability of works of applied art to draw a borderline between artistic protection and design protection; their exclusion from copyright law being justified by the availability of design protection. This approach was then broadened to cover all categories of borderline protectable works. Schricker, *infra* note 67, at 41–48. The question then arises whether the degree of individuality in the work is sufficient to qualify for copyright protection. The reasoning is that such content belongs to the public domain and must remain accessible to all. Consequently, individuality would be found primarily in the Form (as opposed to the Content) of the work. Bundesgerichtshof [BGH] [Federal Court of Justice] 1991 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 449 (453) (F.R.G.) – Betriebssystem.

protectable works.<sup>67</sup> This standard applied to, *inter alia*, computer programs,<sup>68</sup> maps, and technical drawings.<sup>69</sup> Its use was justified by the need for free access to information.<sup>70</sup>

At the other end of the spectrum, a standard of simple individuality applies. This latter standard has subsequently been mandated by EU Directives for computer programs<sup>71</sup> and databases<sup>72</sup> and has been implemented into German law.<sup>73</sup> In addition to databases and computer programs, this low protection standard is also applicable to other various types of information works, which are of high economic significance, yet irrelevant from the cultural-artistic standpoint.<sup>74</sup>

Protection of works such as telephone directories, catalogs, and price lists falls under the so-called “small change doctrine,” the lowest level at which a work is deemed protectable as a personal intellectual creation.<sup>75</sup> Protection is granted despite the fact that in such works, typically, external dictates impose limitations on the author’s expression, and, therefore, little, if any, individual creation is involved.<sup>76</sup> Some

67. Gerhard Schricker, *Farewell to Level of Creativity*, IIC 1995 Heft 1, 41–48, at 42; BGH GRUR 1993, 34 (35) – Bedienungsanweisung.

68. BGH GRUR 1991, 449 (453) – Betriebssystem.

69. Scientific works, lawyers’ briefs, and letters continue to be subject to a higher standard in that they must demonstrate additional creativity (“schöpferische Fantasie und Gestaltungskraft”). HAIMO SCHACK, URHEBER- UND URHEBERVERTRAGSRECHT Rn.175, at 92. (3. Auflage, Mohr Siebeck 2005).

70. SCHRICKER, *supra* note 39, § 2, Rn.34. Imposition of a high standard has, however, been criticized. According to some commentators, the high standard should be limited to the field of applied art where Geschmacksmusterschutz provides back-up protection and “protection gaps” can therefore be avoided. *Id.* at § 2, Rn.35.

71. Directive of 14 May 1991 on the Legal Protection of Computer Programs (91/250/EEC).

72. Directive of 11 March 1996 on the Legal Protection of Databases (96/9/EEC).

73. UrhG 69a sets forth the protectability of computer programs following the amendment to implement EU Directive 91/250/EEC.

74. SCHACK, *supra* note 69, Rn.262, at 175.

75. Thus, protection has been granted under the small change doctrine to catalogs, price lists, telephone directories, collections of recipes, etc., on the ground that for writings a very limited amount of individual creativity is sufficient for protection (“äusserst geringer Grad individuellen Schaffens”). SCHRICKER, *supra* note 39, § 2, Rn.38; *see also* Bundesgerichtshof [BGH] [Federal Court of Justice] 1994 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 39 (F.R.G.) – Buchhaltungsprogramm.

76. *See* BGH GRUR 1998, 916 (918) – Stadtplanwerk; Bundesgerichtshof [BGH] [Federal Court of Justice] 1991 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 529 (F.R.G.) et seq. – Explosionszeichnungen; MANFRED REHBINDER, URHEBERRECHT 14. Auflage, (Verlag C.H. Beck München 2004) Rn.59, at 27. The doctrine of small change, or “kleine Münze” in German copyright law, refers to the lowest threshold at which works are copyrightable. MANFRED REHBINDER, URHEBERRECHT Rn.38, 87; SCHRICKER, *supra* note 39, § 2, Rn.38.

commentators feel that such creations may be best left to the law of unfair competition.<sup>77</sup>

Overall, despite some fluctuations, a general trend in both the United States and Germany toward lowering the thresholds of copyrightability is apparent. Lower thresholds result in a larger number of UIW being covered by copyright and an increasingly detrimental impact on the free flow of information and on innovation.

This Article next turns to the question whether copyright's limiting doctrines can counterbalance this trend and ensure a flow of information that is adequate to satisfy the need for innovation in a KBE.

*c. Limitations on Protectability Applicable to Functional Works*

Most modern copyright laws share the categorical rule of non-protectability of ideas and factual information, intended in large measure to ensure the free flow of information.<sup>78</sup> While these rules result in a reduction in the overall scope of copyright protection, this reduction is accepted because of the compelling nature of the public interest in access to the underlying facts. Access is important because it allows third parties to build freely upon existing ideas and information from a prior author's work.<sup>79</sup>

While these principles are without controversy, their actual implementation in legislation and by the courts has proved much less clear cut.

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77. "The so-called small change of copyright should be left to the province of competition law, or to some yet to be legislated form of protection of services." REHBINDER, *supra* note 76, Rn.61, 117 at 28, 51; *see also* SCHRICKER, *supra* note 39, § 2, Rn.39 (citing MANFRED REHBINDER, URHEBERRECHT Rn.61, at 28). Some commentators consider that granting protection to works of such low originality dishonors copyright law because copyright law contemplates only protection for truly creative works, which merit protection of seventy years *post mortem auctoris*. By lowering the standard, the law has included "seasonal goods" within its purview. *See* Schricker, Comment to Bundesgerichtshof [BGH] [Federal Court of Justice] 1986 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 739 (740) (F.R.G.) –Anwaltsschriftsatz.

78. Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 429 (1984) (quoting United States v. Paramount Pictures, Inc., 334 U.S. 131, 158 (1948)); *see also* SCHRICKER, *supra* note 39, § 2, Rn.50; REHBINDER, *supra* note 76, Rn.59 at 27.

79. It allows "others to build freely upon the ideas and information conveyed by a work." Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 349–50 (1991).

*d. Limitations on Protection in the United States**i. The Idea-Expression Distinction*

In U.S. law, the policy of non-protectability of ideas is implemented by granting protection to original expression (i.e., that part of a work that is unique to the author<sup>80</sup>), while withholding protection from “ideas.”<sup>81</sup> This doctrine, known as the idea-expression distinction, is viewed as the “most universal axiom of copyright law.”<sup>82</sup> Courts and scholarly literature have written much, but clarified little, in relation to this doctrine. The primary reason for this is that the distinction between non-protectable ideas and protectable expression is fundamentally nebulous and troublesome.<sup>83</sup> One court noted that this distinction is “more of an amorphous characterization than it is a principled guidepost,”<sup>84</sup> as it leaves courts without a clear rule on when an imitator has gone beyond copying the “idea,” and has borrowed its “expression.” A case-by-case analysis is required in each instance to separate ideas from expression.<sup>85</sup> The determination is made entirely based on the subjective judgment of the examining party.<sup>86</sup> As a result, decisions are inevitably ad hoc.<sup>87</sup>

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80. *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239 (1903).

81. 17 U.S.C. § 102(b) (1976).

82. *Feist*, 499 U.S. at 344–45.

83. See generally *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930); see also 4 MELVILLE NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT, § 13.03(a) (1986); *Digital Commc'ns Assocs. Inc. v. Softklone Distrib. Corp.*, 659 F. Supp. 449, 458, 2 U.S.P.Q. 2d 1385, 1390 (N.D. Ga. 1987) (“The inherent problem with applying the idea (and expression merged with idea) versus expression (copyrightable) distinction to any specific case is defining the underlying ‘idea’ of the copyrighted work.”).

84. *Chuck Blore & Don Richman, Inc. v. 20/20 Adver. Inc.*, 674 F. Supp. 671, 676 (D. Minn. 1987).

85. See SHELDON HALPERN, COPYRIGHT LAW—PROTECTION OF ORIGINAL EXPRESSION 51 (2002).

86. The absence of any clear rules prompted one aggravated court to note: “The first axiom of copyright is that copyright protection covers only the expression of ideas and not ideas themselves. . . . The second axiom of copyright is that the first axiom is more of an amorphous characterization than it is a principled guidepost.” *20/20 Advertising Inc.*, 674 F. Supp. at 676 (D. Minn. 1987) (internal citations omitted).

87. “Conceptually, the problem arises because the ‘critical distinction between ‘idea’ and ‘expression’ is difficult to draw. As Judge [Learned] Hand candidly wrote, ‘Obviously no principle can be stated as to when an imitator has gone beyond copying the ‘idea,’ and has borrowed its ‘expression.’” *CDN, Inc. v. Kapes*, 197 F.3d 1256, 1261 (9th Cir. 1999). Judge Hand’s abstractions formulation laid out in *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930), have been enforced. *CDN*, 197 F.3d at 1262. The formulation recognizes that every work can be described at varying levels of abstraction, and the higher the level of abstraction copied, the less likely this taking will be infringement of a copyright. As Judge



Some commentators have abandoned the hope of true differentiation by way of idea-expression and use the distinction simply as a metaphoric phrasing for the outcome of protectability.<sup>88</sup> Others dismiss the idea-expression distinction altogether as a “formalism from another era,” because of the practical inability to apply it to music, video, pictures, cartoons, and movies.<sup>89</sup> This may simply be a line that is artificial<sup>90</sup> and cannot be drawn.<sup>91</sup>

UIW present a particular challenge when it comes to the idea-expression distinction, in that they do not fit the traditional author-centric copyright mold.<sup>92</sup> The vast majority of material contained in UIW consists of non-protectable ideas, facts, and information. They are created by knowledge workers with specialized education and training, likely in collaboration with others, and build on the work of prior knowledge workers. UIW are governed by pre-established rules inherent in the subject matter at issue. These rules range from alphabetical arrangements to the rules of physics. The knowledge worker must comply with these rules in order to create a work that is useful. All of these facets of UIW are not captured by the idea-expression distinction. For this reason, some commentators believe that the idea-expression analysis and UIW are incompatible.<sup>93</sup> Nevertheless, the idea-expression distinction is the primary tool available to assess the copyrightability of UIW. If couched into traditional analysis, UIW would generally hover in the non-protectability range, leaving the idea-expression doctrine subject to constant pressures to justify protectability of UIW in order to protect the creator’s investment.

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Hand noted, “the difference between idea and expression is one of degree.” *Id.*; see also *Matthew Bender & Co. v. Kluwer Law Book Publishers, Inc.*, 672 F. Supp. 107, 109 (S.D.N.Y. 1987).

88. For instance, “idea and expression should not be taken literally, but rather as metaphors for a work’s unprotected and protected elements respectively.” Lloyd Weinreb, *Copyright for Functional Expression*, 111 HARV. L. REV. 1149, n.105 (1998) (citing 1 PAUL GOLDSTEIN, *GOLDSTEIN ON COPYRIGHT*, § 2.3.1 (2d ed. 1998)).

89. Interview by Intellectual Property LawCast with Lawrence Lessig (Mar. 3, 2002).

90. CHRISTOPHE GEIGER, *DROIT D’AUTEUR ET DROIT DU PUBLIC À L’INFORMATION—APPROCHE DE DROIT COMPARÉ* 179 (LITEC, Paris 2004).

91. Interview by Intellectual Property LawCast with Lawrence Lessig (Mar. 3, 2002).

92. See generally Peter Jaszi, *Toward a Theory of Copyright: The Metamorphoses of Authorship*, 41 DUKE L.J. 455 (1991) (arguing that the concept of “authorship” is being used strategically to extend copyright protection to new kinds of subject matter by disassociating it from the “author-genius” concept and re-associating it with low levels of creative activity).

93. Weinreb, *supra* note 88, at 1179–80.

ii. Exclusion of Ideas, Procedures, Processes, Systems, and Methods of Operation

The principle of non-protection of ideas is further reflected in the statutory prohibition that “[i]n no case . . . [shall] . . . any idea, procedure, process, system, method of operation, concept, principle, or discovery” be protectable.<sup>94</sup> While data, “facts,” and “factual information” are not expressly mentioned, they are generally considered to be unprotectable, in the same way as ideas.<sup>95</sup> Application of Section 102(b) should, in theory, broadly exclude functional works from copyright protection. This exclusion differs from the idea-expression approach in that it does not focus on the authorial creativity but instead on the nature of the work. It is unclear, however, whether the Section 102(b) categories are exempt *per se*, or whether they must undergo a case-by-case protectability analysis.<sup>96</sup> In other words, is it sufficient for a court to conclude that a work is a procedure, process, or system under the statute to exclude the work from protection? Or, would a court, once a work has been found to be such a procedure, process, or system, then examine its individuality? If so, the effect of the prohibition would be largely undermined. On the other hand, outright exclusion of works belonging to these categories may be difficult, given the high level of abstraction at which these categories are articulated. This difficulty is compounded by the lack of definition of procedures, processes, and systems, as well as the lack of guidance on how they would differ from non-procedures, non-processes, and non-systems. Courts may therefore hesitate to conclude with confidence that a given work is a non-copyrightable procedure, process, system, or method of operation. Possibly for this reason, these exclusions have been given relatively little in-depth attention by courts and scholarly writing.<sup>97</sup>

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94. 17 U.S.C. § 102(b).

95. *Harper & Row Publishers v. Nation Enters.*, 471 U.S. 539, 556–57 (1985); *see also* 1 GOLDSTEIN, *supra* note 4, § 2.2.1 at 2:18 (stating “facts are building-block ‘ideas’”); *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

96. The language of Section 102(b) is intended to be a codification of the rule of *Baker v. Selden*, 101 U.S. 99 (1879). Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes from the Scope of its Protection*, 85 TEX. L. REV. 1921, 1923 (2007). In that case, *Baker* could constitute precedent for applying a *per se* exclusion for all works falling within the categories listed by 102(b), without subjecting them to an idea/expression analysis. However, post-*Baker* case law in many instances examines the facts in terms of originality and idea expression, an analysis which will inevitably reduce the scope and effectiveness of 102(b).

97. Samuelson, *supra* note 96, at n.4.

### iii. The Merger Doctrine

Facts and ideas are additionally insulated from monopolization by the merger doctrine. Normally facts and ideas do not appear in isolation. They are surrounded by protectable expression and are, in fact, often inextricably intertwined. The merger doctrine operates by forming a *cordon sanitaire* around the fact or idea. It thus precludes protection of the fact or idea, as well as the associated expression, if essential to conveying the fact or idea. In other words, “if there is just one way to express an idea, the idea and expression are said to merge, and the expression is not protectable” under the copyright laws.<sup>98</sup> This is particularly important if the idea can only be expressed in one or a limited number of ways. In such instances, protection of expression would inevitably afford protection to the idea.<sup>99</sup> Merger thus ensures that ideas are protected from private ownership and public access to the idea is free.<sup>100</sup> Courts have, however, been generally cautious in applying the merger doctrine to UIW, out of concern about depriving authors of their entitlement to protection.<sup>101</sup>

Furthermore, as regards UIW, application of the doctrine raises additional issues. Unlike Section 102(b), the merger doctrine remains an author-centric approach, which couches UIW into a mold of individuality. A court would thus focus on originality instead of the work’s utilitarian purpose. In addition, the outcome of the merger analysis varies with the level of abstraction at which the idea is formulated. If the creator’s idea is identified at a low level of abstraction, the idea would always merge into its expression, and no copyrightable work could ever exist. For instance, one creator could formulate the idea of a work at a high level of abstraction, as a “collection of legal authorities,” whereas another could formulate the same work at a low level of abstraction as an “alphabetical listing of cases on copyright functionality in the Ninth Circuit between 1990 and 2005.” In the latter formulation, the idea would merge with the

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98. *Yurman Design, Inc. v. PAJ, Inc.*, 262 F.3d 101, 111 (2d Cir. 2001).

99. *N.Y. Mercantile Exch., Inc. v. Intercontinental Exch., Inc.*, 389 F. Supp. 2d 527, 540–41 (S.D.N.Y. 2005).

100. *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports*, 44 F.3d 61, 68 (2d Cir. 1994).

101. *E.g., id.* at 70 (noted that every compilation represents an idea, which in order to be conveyed accurately must be conveyed only by its expression); *Educ. Testing Servs. v. Katzman*, 793 F.2d 533, 540 (3d Cir. 1986) (holding the doctrine inapplicable to the selection of test questions); *Toro Co. v. R & R Prods. Co.*, 787 F.2d 1208 (8th Cir. 1986) (holding the doctrine inapplicable to the selection of data for numbering parts).



expression, and the work would be unprotectable. While formulation of the idea at a high level of abstraction does not guarantee that the work will be protected,<sup>102</sup> it provides courts with many more opportunities to find protectable expression. In summary, the merger doctrine does not provide a reliable method for excluding factual and utilitarian works from protection.

*e. Limitations on Protectability in Germany*

Other jurisdictions effect non-protectability of ideas in different ways, with essentially similar results. Under German law, copyrightable works are created by the author's molding of intellectual "Content,"<sup>103</sup> the rough equivalent of an idea, into a particular "Form,"<sup>104</sup> the rough equivalent of expression.<sup>105</sup> As in U.S. law, the distinction between Form and Content is relevant to protectability,<sup>106</sup> and the transition between the two is fluid with no clear dividing line.<sup>107</sup>

Older German law held Form to be protectable and Content to be non-protectable.<sup>108</sup> Modern law has, however, distanced itself from this view, holding that protection can reside in either Form or Content, as the creator can inject his individual intellectual contribution into either. Both Content and Form can therefore be subject to protection.<sup>109</sup> The

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102. "Even with an idea formulated at a somewhat high level of abstraction, circumstances might occur where the realistic availability of differing expressions is so drastically limited that the idea can be said to have merged in its expression." *Kregos v. Associated Press*, 937 F.2d 700, 706 (2d Cir. 1991).

103. REHBINDER, *supra* note 76, Rn.51, at 24; the term "Content" is used here as a translation of the German "Inhalt."

104. *Id.* The term "Form" is used here as a translation of the German "Form," also described as the concrete shape of an unprotectable idea. DREIER & SCHULZE, *supra* note 65, § 4, Rn.43.

105. *See, e.g.*, UrhG §§ 1 and 2 protect "persönliche geistige Schöpfung" (personal intellectual creation), which underlies the distinction between "Form" (form) and "Inhalt" (content). The former, akin to the concept of protected expression, is protected in all instances, while the latter is protected only as expression of individuality and not as part of common cultural property. Ideas are not protected. REHBINDER, *supra* note 76, Rn.51, at 24.

106. DREIER & SCHULZE, *supra* note 65, § 4, Rn.43.

107. *Id.*; REHBINDER, *supra* note 76, Rn.51, at 25. In contrast to U.S. law, the dividing line between protectability and non-protectability does not coincide with the Form/Content separation.

108. DREIER & SCHULZE, *supra* note 65, § 4, Rn.43.

109. German law differentiates between outer form (the means of expression, sentences, etc.), which is protectable if it reflects the creator's individuality, and inner Form (the plan, sequence of ideas, argumentation in e.g. a scientific work), which may also be protectable to the extent it reflects the creator's individual manner of thinking. Content generally reflects the content of the human mind. The former division was made along the line of protectable Form and unprotectable Content. Current thinking adheres to a

requisite individuality can thus be found in any of the following: (a) a particular structuring of the train of thought (Content);<sup>110</sup> (b) a particularly creative manner of collecting, categorizing, and organizing material (the inner Form) in a compilation;<sup>111</sup> or (c) in the particular style and language (the outer Form).<sup>112</sup> Expressly excluded from protection are ideas and Form at an abstract level, when they are not actually represented or fixed in a work. Ideas, instructions, methods, systems formulae, and mathematical systems, separated from their concrete fixation, would accordingly not be subject to copyright protection.<sup>113</sup>

In technical works, the “technical substance,” or content of the work, cannot form the basis of protectability because it must remain free for all to use.<sup>114</sup> Thus, it is said that, in technical works,<sup>115</sup> the possibility of an original train of thought does not exist.<sup>116</sup> Individuality, if any, would be found in the inner or outer Form in which the material is presented.<sup>117</sup> However, if the Form is dictated by external factors,<sup>118</sup>

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differentiation based on individual characteristics of a work, which as a result is protectable, as opposed to commonly owned works (“Gemeingut”). Excepted from this rule are scientific works, in which Form is deemed easily separable from Content and where the concern of monopolization of ideas and research prevails. REHBINDER, *supra* note 76, Rn.51, 59, at 24, 27; *see also* GERHARD SCHRICKER (Hrsg): URHEBERRECHT AUF DEM WEG ZUR INFORMATIONSGESELLSCHAFT 37 (Baden-Baden 1997).

110. REHBINDER, *supra* note 76, Rn.58, at 274.

111. UrhG. § 4; REHBINDER, *supra* note 76, at 37; BGH GRUR 1981, 352—Staatsexamensarbeit (selection and arrangement of elements); Bundesgerichtshof [BGH] [Federal Court of Justice] 1999 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 92 (F.R.G.)—Tele-Info CD.

112. REHBINDER, *supra* note 76, Rn.58, at 274.

113. *Id.*

114. SCHRICKER, *supra* note 109. In such works the concern of monopolization of ideas and research prevails. REHBINDER, *supra* note 76, Rn.51, at 24.

115. DREIER & SCHULZE, *supra* note 65, § 2, Rn.93. This information must remain freely accessible to all (“Gemeingut”); BGH GRUR 1981, 352 (353)—Staatsexamensarbeit.

116. BGH GRUR 1984, 659 (660)—Ausschreibungsunterlagen; Bundesgerichtshof [BGH] [Federal Court of Justice] 1985 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 1040 (F.R.G.)—Inkassoprogramm; BGH GRUR 1999, 92—Tele-Info CD.

117. BGH GRUR 1984, 659 (661–662)—Ausschreibungsunterlagen and Comment thereto.

The technical content of a work—the technical ‘teaching’ as such cannot be the object of copyright. Copyrightability of such works [containing technical teachings] can be based only on the creative form of presentation . . . on a particularly intelligent manner of collection, categorization and arrangement of the material . . . [However], [t]he arrangement and categorization, the concrete form, the presentation of the technical content normally result from the nature of things. In principle one must assume that the customary manner of expression in a given field lacks the individuality required for copyrightability. The same applies to structure

such as the nature of things, scientific reasons,<sup>119</sup> customary forms of expression in the field, the purpose of the work, logic,<sup>120</sup> or the nature of technology, even the Form will generally not display the requisite individuality for copyright purposes. Thus, the requisite individuality should be absent when business, technical, or functional constraints, such as efficiency or compatibility, limit the room for creativity.<sup>121</sup>

### PART III

#### A. Copyright Law and Functionality

None of the doctrines discussed so far expressly addresses the concept of functionality. Yet there seems to be agreement that functional creations do not, in general, pertain to the realm of copyright law, but to that of patent law, because a work with “utilitarian elements is better left to the more exacting standards of patent and trade secret law.”<sup>122</sup> Functionality is therefore commonly accepted as the dividing line between patent and copyright law.<sup>123</sup>

With mass production of UIW and their increasing value to the economy, both patent law<sup>124</sup> and copyright law are under pressure to find ways to protect these new creations.

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and form of presentation dictated by scientific reasons or customary in the respective field, whose use can therefore not be considered an individual creation. (Dana Beldiman trans.); *see also* BGH GRUR 1981, 352 (353) – Staatsexamensarbeit.

118. Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] Jun. 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (F.R.G.); SCHRICKER, *supra* note 39, § 4, Rn.9: “If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation.” (Dana Beldiman trans.).

119. “The need for future scientific treatment of the subject matter, leaves relatively little free room for individual creative presentation and formulation.” (Dana Beldiman trans.). Bundesgerichtshof [BGH] [Federal Court of Justice] 1981 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 352 (355) (F.R.G.).

120. OLG MMR 2002, 687.

121. ARTHUR-AXEL WANDTKE & WINFRIED BULLINGER, URHEBERRECHT, Rn.35 (2. Aufl. 2006).

122. 2 GOLDSTEIN, *supra* note 4, § 10.5, at 10:78; *see generally* Dennis S. Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 CONN. L. REV. 439 (2003).

123. *See generally* Karjala, *supra* note 122.

124. For instance, because copyright protection of software is unpredictable, owners tend to seek protection under patent laws. This has resulted in patentability of business methods in the United States. *See* State St. Bank & Trust Co. v. Signature Fin. Group, 149 F.3d 1368 (Fed. Cir. 1998). Other countries’ laws, however, e.g., Convention on the Grant of European, still preclude patentability of computer programs “as such.” Convention on the Grant of European Patents, art. 52, Oct. 5, 1973.

If functional works pertain to the patent side, or at least not to the copyright side, the question arises: Does copyright have a mechanism to ensure that functional works, in fact, stay on the “non-copyright” side of the dividing line? In other words, are functional works excluded from copyright protection, as they are, for instance, from trademark protection?<sup>125</sup>

In U.S. law, provisions relating to exclusion of functional works from copyrightability appear in two areas: (1) the exclusion of “ideas, procedures, processes, systems, methods of operation, concepts, principles or discoveries”<sup>126</sup> discussed above, and (2) the exclusion of utilitarian applied art.<sup>127</sup>

The latter exclusion relating to functional works is set forth as part of the statutory scheme surrounding protection of pictorial, graphic, and sculptural articles.<sup>128</sup> The purpose of this provision is to separate copyrightable aesthetic works from uncopyrightable “useful articles” (i.e., utilitarian works) in the area of pictorial, graphic, and sculptural works. As relevant for present purposes, such works include maps, globes, charts, diagrams, technical drawings, and architectural plans.<sup>129</sup> The utilitarian aspects of such works are separable from their aesthetic aspects and are not subject to protection.<sup>130</sup> If separability cannot be achieved, neither utilitarian nor aesthetic aspects are protectable.<sup>131</sup>

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125. A product feature is defined as functional if “it is essential to the use or purpose of the [article] or if it affects the cost or quality of the [article].” *Traffix Devices v. Mktg. Displays*, 532 U.S. 23, 32–33 (2001) (citing *Qualitex Co. v. Jacobson Prods. Co.*, 514 U.S. 159 (1995)) (Justice Kennedy uses the term “device” instead of “article.”).

126. 17 U.S.C. § 102(b). The works excluded under this section are functional, even though the language does not expressly state it.

127. *Id.* at § 101 (definition of pictorial, graphic, and sculptural works).

128. *Id.*

129. “‘Pictorial, graphic, and sculptural works’ include two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, diagrams, models, and technical drawings, including architectural plans.” *Id.*

130. “‘A useful article’ is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information . . . .” *Id.* Once a work falls into this category, it must be determined whether the utilitarian aspects are separable under the requirements of the “pictorial, graphic, and sculptural works” definition.

131. “This definition was adopted in an effort to deal with the problem of industrial design by excluding utilitarian functions other than to inform or portray an appearance, from copyright protection and by excluding even expressive aspects of useful articles to the extent they are not separable from the utilitarian functions.” Dennis S. Karjala, *A Coherent Theory for the Copyright Protection of Computer Software and Recent Judicial Interpretations*, 66 U. CIN. L. REV. 53 (1997); see also Jane C. Ginsburg, *Four Reasons and a Paradox: The Manifest Superiority of Copyright over Sui Generis Protection of Computer Software*, 94 COLUM. L. REV. 2559 (1994).



As the only provision in U.S. copyright law that expressly addresses the issue of functionality,<sup>132</sup> the useful article provision could, in theory, serve as a model for evaluating protectability of information works. Unfortunately, U.S. courts have not been able to agree on an interpretation of the statutory language. Separability has variously been viewed alternatively as (1) treatment of artistic features as “primary” and the utilitarian features as “subsidiary”;<sup>133</sup> (2) the fact that the article “stimulate[s] . . . the mind of the beholder a concept that is separate from the concept evoked by its utilitarian function”;<sup>134</sup> (3) the fact that the artistic design was not significantly influenced by functional considerations;<sup>135</sup> (4) the fact that artistic features “can stand alone as a work of art traditionally conceived, and the useful article in which it is embodied would be equally useful without it”;<sup>136</sup> or (5) simply that artistic features are not utilitarian.<sup>137</sup> In short, efforts to define separability have remained inconclusive.

More importantly, the useful article exception is specifically tailored to applied art in that it excludes from protection useful articles with an “intrinsic utilitarian function.”<sup>138</sup> Useful articles, however, do not

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Such works shall include works of artistic craftsmanship insofar as their form, but not their mechanical or utilitarian aspects are concerned; the design of a useful article, as defined in this section, shall be considered a pictorial, graphic or sculptural work only if, and only to the extent that, such design incorporates pictorial, graphic or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article. 17 U.S.C. § 101.

132. The only statutory definition of functionality in U.S. law. Karjala, *supra* note 131, at 58.

133. Kieselstein-Cord v. Accessories by Pearl, Inc., 632 F.2d 989, 993 (2d Cir. 1980).

134. Carol Barnhart, Inc. v. Econ. Cover Corp., 773 F.2d 411, 422 (2d Cir. 1985).

135. See *Brandir Int'l, Inc. v. Cascade Pacific Lumber Co.*, 834 F.2d 1142, 1145 (2d Cir. 1987).

136. 1 GOLDSTEIN, *supra* note 4, § 2.5.3, at 2:67.

137. Under the hybrid differentiating mechanism, articulated in *Pivot Point International, Inc. v. Charlene Products*, if the design elements of a useful article reflect the independent, artistic judgment of the designer, conceptual separability exists. If, on the other hand, the design of a useful article is “as much the result of utilitarian pressures as aesthetic choices,” the useful and aesthetic elements are not conceptually separable. *Pivot Point Int'l, Inc. v. Charlene Prods.*, 372 F.3d 913, 923, 931 n.72 (7th Cir. 2004). Another test articulated is that the useful article “would still be marketable to some significant segment of the community simply because of its aesthetic qualities.” NIMMER & NIMMER, *supra* note 83, § 2.08[B][3] at 2–101.

138. 17 U.S.C. § 101 defines “[a] ‘useful article’ [as] an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information.”

include works that are intended to “convey information.”<sup>139</sup> Simply stated, under this definition,<sup>140</sup> works that “convey information” do not fall within the useful article category and are therefore not covered by the exclusion under this section.

Consequently, the functionality bar contained in the useful article definition does not translate well to information works. All information works, by definition, convey information, yet many are unquestionably functional, e.g., accounting systems convey information about debits and credits;<sup>141</sup> TV program schedules convey information about timing of TV programs to users;<sup>142</sup> futures settlement values convey information to buyers and sellers about the prices to be paid.<sup>143</sup> Applying the definition contained in 17 U.S.C. § 101 to UIW would exclude these works from being useful articles and would render the useful article limitation inapplicable. Given the inapplicability of this exception, courts might be inclined to grant protection.<sup>144</sup> In short, in the broader context of information works in a KBE, it is unlikely that the exclusion of useful articles finds productive application.

Some commentators have tried to reconcile the useful article definition with the concept of functionality for purposes of information works.<sup>145</sup> Others have attempted to extrapolate from the treatment of useful articles in applied art, a rule that would apply to useful or utilitarian information works of authorship or applied literature.<sup>146</sup> None of these efforts has yielded a bright line that would allow functional

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139. *Id.* (defining “useful article”).

140. It should be kept in mind that this Section was developed for the area of applied art, and is not specifically intended to be used in the context of information works.

141. *Baker v. Selden*, 101 U.S. 99 (1879); Weinreb, *supra* note 88, at 1178.

142. Joined cases C-241/91 P and C-242/91 P, *Radio Telefis Eireann & Indep. Television Publ'ns Ltd. v. Comm'n of the European Cmty.*, 1995 E.C.R. I-743.

143. *N.Y. Mercantile Exch., Inc. v. Intercontinental Exch., Inc.*, 497 F.3d 109 (2d Cir. 2007); Weinreb, *supra* note 88, at 1178.

144. *Gemel Precision Tool Co. v. Pharma Tool Corp.*, Civil Action No. 94-5305, 1995 U.S. Dist. LEXIS 2093, 35 U.S.P.Q.2D (BNA) 1019 (E.D. Pa. 1995).

145. Karjala, *supra* note 122, n.38. To reconcile the useful article exception, outside the context of applied art, Professor Karjala distinguishes “functional” from “useful” works. Properly excluded works which have a “utilitarian function” in “useful articles” are different from the kind of usefulness or functionality inherent in items such as maps, recipe books, directories, dictionaries, and accounting systems, which may be protected by copyright. While “maps enable us to go from one place to another; recipes tell us how to bake cakes; accounting books explain how to implement a particular system of accounting; pictures are useful for decorating homes and offices.” These are simply part of the many works that are “useful” to human beings protected by copyright; *see also* Karjala, *supra* note 131, at 58.

146. Ginsburg, *supra* note 131, at 2568 (arguing that in appropriate cases such an extension is not inconsistent).

information works to be excluded from copyright protection on a principled basis. In light of this, the useful article exception may best be left to the area of applied art.

German law makes no express reference to functionality. Nonetheless, the exclusion from protection of works, whose form is dictated by the nature of things,<sup>147</sup> scientific reasons, or the nature of technology,<sup>148</sup> sounds in functionality. However, this apparent functionality language is tied into the individuality analysis. The reasoning is that works, whose form is dictated by functional considerations, do not leave sufficient room for individuality for purposes of copyright.<sup>149</sup> Since existence of such functional constraints is merely a question of degree in the general spectrum of individuality, drawing the correct line is often problematic, yielding results such as the Frankfurt OLG ruling in *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*.<sup>150</sup>

### *B. The Tension between Originality and Functionality*

As shown by the preceding discussion, copyright law provides no clear basis for excluding works based on their functional nature. The result is that protectability will be assessed primarily based on the measure of the work's originality.

However, an inherent tension exists between the concept of originality in copyright and the value system of UIW. The originality requirement reflects the value system of copyright; it encourages subjective imagination and deviation from routine. It seeks and rewards diversification based on expression of the creator's individual perception of reality. The "originality lens" is therefore focused on the creator's subjective creative input.

In UIW, the creator's subjectivity is virtually irrelevant. Functional

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147. GERHARD SCHRICKER, URHEBERRECHT, Schricker/Schricker, § 4, Rn.195.

148. Bundesgerichtshof [BGH] [Federal Court of Justice] Mar. 29, 1984, Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 659 (661) (F.R.G.); Bundesgerichtshof [BGH] [Federal Court of Justice] Jan. 16, 1981, Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 352 (355) (F.R.G.).

149. "If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation." (Dana Beldiman trans.). Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] Jun. 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (citing SCHRICKER, *supra* note 39, § 4, Rn.9).

150. See *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, ECJ (decided on Oct. 2, 2003) available at <http://curia.europa.eu/juris/cgi-bin/gettext.pl?lang=en&num=79968997C19010418&doc=T&ouvert=T&seance=CONCL>.

works require expression that conforms to objective reality and pre-established rules inherent in the work's functionality. A creator's expressive choices must conform to it. A creator's expression is therefore constrained by the work's functionality. The following Section will discuss some of the constraints to expression encountered in UIW and how they have been approached by courts.

### 1. Constraints on Expression in UIW

Constraints to expression can be inherent in the functionality of utilitarian works or imposed by external limitations, such as standardization,<sup>151</sup> interoperability,<sup>152</sup> the market,<sup>153</sup> or convention.<sup>154</sup>

#### *a. Inherent Constraints on Expression*

UIW are generally governed by rules, ranging anywhere from the alphabet to the laws of physics, dictated by the work's functionality. In large part, these rules determine the creator's expressive choices. A creator's expressive choice can thereby be rendered "inevitable,"<sup>155</sup> "functionally constrain[ed],"<sup>156</sup> "dictated by the nature of things,"<sup>157</sup> or

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151. *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977, 981 (7th Cir. 1997).

152. Expression is "constrained" by the requirements of interoperability. Samuelson, *supra* note 4, at 218. In software the expression "necessarily result[s] from external factors inherent in the subject matter of the work." *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366, 1375 (10th Cir. 1997).

153. A teaching manual must imitate the leading manual because "in teaching, a noticeable style is a hindrance. Two simple and straightforward explanations of an economic law or principle must bear a close resemblance, so greater similarity must be allowed." *Kepner-Tregoe, Inc. v. Carabio*, No. 8-71025, 1979 WL 1072, at \*8 (E.D. Mich. April 20, 1979) (citing *McGraw-Hill, Inc. v. Worth Publishers, Inc.*, 335 F. Supp. 415, 420-21 (S.D.N.Y. 1971)).

154. "Even if multiple possibilities exist, the room for individual creation is limited by the fact that such directories are generally subject to conventions which have developed in alphabetically organized directories in general, and in telephone directories in particular, and which, consciously or unconsciously, are expected by the user." (Dana Beldiman trans.). Bundesgerichtshof [BGH] [Federal Court of Justice] 1992 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 92 (F.R.G.) – Tele-Info CD. Similarly, expression may be dictated by the nature of things, logic, or the purpose of the work. Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] June 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (F.R.G.) (citing SCHRICKER, *supra* note 39, § 4, Rn.9).

155. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 367 (1991).

156. Julia E. Cohen, *Reverse Engineering and the Rise of Electronic Vigilantism: Intellectual Property Implications of "Lock-Out" Programs*, 68 S. CAL. L. REV. 1091, 1138 (1995); see generally Pamela Samuelson, *Why Copyright Excludes Systems and Processes from the Scope of its Protection*, 85 TEX. L. REV. 1921 (2007).

157. Bundesgerichtshof [BGH] [Federal Court of Justice] 1981 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 352 (353) (F.R.G.).



“dictated by logic.”<sup>158</sup>

Consider, for instance, the construction of a tangible utilitarian work, such as a machine. A machine will only work if parts are assembled precisely in accordance with a blueprint. If its assembly deviates from the blueprint, the functionality is destroyed and the machine will not work. The same is true for intangible utilitarian works: their expression must observe the work’s “blueprint.” For a phone directory, for instance, the “blueprint” generally is alphabetical order. If the order were changed, say by reversing some letters in the alphabet, so that “a” follows “s,” the product would be useless to users who expect to find entries in alphabetical order.

The rules governing expression vary with the work’s function.<sup>159</sup> A telephone directory, arranged by ascending order of telephone numbers, is useless when searching by name, but useful for retrieving a subscriber’s name based on an existing number.

The constraints carry through to consecutive iterations of the work. “If an original invention is highly constrained by the laws of physics, subsequent developers cannot simply ignore those laws—they must work within the parameters of the physical laws.”<sup>160</sup>

#### i. The “Most Effective Expression” Principle

In creating UIW, a creator is generally bound to seek the expression that optimally or most effectively achieves the work’s particular functionality.<sup>161</sup> In other words, expression tends toward maximum effectiveness. Creation of UIW follows the same principle as innovation in technical fields: among a number of solutions, one solution will work better than others because it achieves the desired result overall more

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158. “If selection and arrangement result from the nature of things or if they are dictated by purpose or logic, there is no room for individual creation.” (Dana Beldiman trans.). Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] Jun. 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (F.R.G.) (citing SCHRICKER, *supra* note 39, § 4, Rn.9.); Reichman, *supra* note 32, at 685. This in turn may be determined by the broader context of its purpose. See Reichman, *supra* note 32, at 685.

159. See Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] Jun. 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (F.R.G.) (citing SCHRICKER, *supra* note 39, § 4, Rn.9).

160. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1036 (1997). Artists and writers presumably face no similar constraint (or at least a less restrictive one) because it is possible simply to create a new work from scratch in a completely different genre. *Id.*

161. The process of improvement at one point reaches the point it is the “best” that can be accomplished. Changing the wording even slightly, changes the product’s functionality. Karjala, *supra* note 122, at 524.

effectively, (i.e., faster, simpler, and more cost-effective). The optimal solution in any given circumstance is dictated by the purpose of the work, logic, or the laws of science, etc.<sup>162</sup> In some regards, a creator would then merely execute the pre-established rules that achieve the work's functionality—for example, placing component parts in a particular order. Naturally, different creators might give different interpretations to the rules governing the work and might place a given part differently than others. However, their choices must always be in accordance with the dictates of functionality, i.e., to create a work that functions optimally for the given purpose.

Consider, for instance, the graphic instructions for the use of a motorized saw.<sup>163</sup> In evaluating their copyrightability, the court noted that the designer who created the instructions was free to choose any technique of line drawing, use of gray tones, perspectives, colored arrows, and markings. Exercise of these choices was deemed to be evidence of individuality.<sup>164</sup>

However, had the court considered these choices, in light of their purpose, rather than in an abstract manner, a different result might have been obtained. Assume the motorized saw has a safety switch. In deciding whether to highlight the switch by having an arrow point to it, the designer has two options. The designer may think an arrow will increase the ease of understanding, in which case she would use the arrow, or she may think the arrow does not contribute to easier understanding, in which case she would not use the arrow.<sup>165</sup> In either scenario, the action is determined by the designer's desire to use the expression that will achieve the work's functionality, i.e., to facilitate understanding of the saw's operation, most effectively, otherwise stated,

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162. "Any useful collection of facts . . . will be structured by a number of decisions regarding the optimal manner in which to collect the pertinent data in the most efficient and accurate manner." *Bellsouth Adver. & Publ'g Corp. v. Donnelley Info. Publ'g, Inc.*, 999 F.2d 1436, 1441 (11th Cir. 1993) (en banc).

163. *Bundesgerichtshof [BGH] [Federal Court of Justice] 1993 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 34 (F.R.G.)*.

164. "The court appeal has not sufficiently taken into consideration that selection and arrangement of the drawings and images, as well as cross-referencing images and text can contain creativity." (Dana Beldiman trans.) *Id.* at 36.

165. The same process would occur with respect to decisions such as the color of the arrow, its size, whether to use an arrow as opposed to another means of highlighting the switch, etc. All of this assumes, of course, rational action on behalf of the designer, in other words, that she would follow her best judgment and not act against it. It also assumes that she is motivated by the functional objective of making the arrow as visible as possible and not by the objective of making the drawing aesthetically appealing, in which case the work's functional nature is subordinated to its aesthetics.

she will use the “most effective expression.” Therefore, one could say that the creator’s freedom of expressive choice is subordinated to the work’s functionality.<sup>166</sup>

*b. External Constraints on Expression*

Constraints on expression may also be imposed by external factors. Standardization in information products occurs as a result of treatment or arrangement of information in accordance with a given, consistently applied format or method (“language”), regularly used within a given group. Examples of standards are taxonomies, mathematical formulae, the periodic table of chemical elements, industry standards of all kinds, and Internet communication standards. Standards are characterized by each user’s knowledge that other users will strictly observe the language and will readily understand it. Their value lies in facilitated communication within the group.<sup>167</sup> Gratuitous variation from the language impedes communication.<sup>168</sup>

Consider the case of the classification of dental procedures (the “ADA Code”) at issue in *American Dental Ass’n v. Delta Dental Ass’n*.<sup>169</sup> The classification was based on a standard categorization of procedures accepted in the industry.<sup>170</sup> Its precise terminology was fought out in a number of different committees, in the process of long and careful deliberations.<sup>171</sup> The result of this preparatory process was that each procedure was assigned a number, a short description, and a long description. In this manner, an exhaustive listing of all procedures,

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166. See, e.g., *Miller v. Universal City Studios, Inc.* 650 F.2d 1365, 1375 (5th Cir. 1981); Karjala, *supra* note 122, n.230. Furthermore, observing the dictates of functionality leads to substantial efficiencies, whereas deviating from them leads to unnecessary social cost.

167. See Karjala, *supra* note 122, n.230 (citing Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998)); see also David Friedman, *Standards as Intellectual Property: An Economic Approach*, 19 U. DAYTON L. REV. 1109 (1994).

168. Samuelson, *supra* note 4, at 211. Similarly, “[t]he fact that Delta used most of the Code but made modifications is the reason ADA objects, for variations salted through a convention impede communication.” *Am. Dental Ass’n v. Delta Dental Plans Ass’n*, 126 F.3d 977, 981 (7th Cir. 1997).

169. *Am. Dental Ass’n v. Delta Dental Plans Ass’n*, No. 92 C 5909, 1996 U.S. Dist. LEXIS 5809; 39 U.S.P.Q.2D (BNA) 1714 (N.D. Ill. 1996).

170. “The choice of which categories to include, and correspondingly, which procedures to list under each category, is entirely dictated by standard practice and custom in dentistry. . . . [T]he organization of the Code merely restates the divisions of dentistry understood by the profession,” *Am. Dental Ass’n*, 1996 U.S. Dist. LEXIS 5809 at \*44.

171. *Id.* at \*6–7. As the District Court pointed out, classification means the action of classifying or arranging according to common characteristics or affinities (Oxford English Dictionary) constrained by these characteristics. *Id.* at \*22.

organized in the most logical way, became available to facilitate communication within the ADA's constituency of dentists, patients, and insurers. The very value of this Code lies in its uniformity and conformity.<sup>172</sup> For example, each user can predictably rely on the fact that guided tissue regeneration will be found under section 4200, along with related procedures and not randomly under section 2500, or elsewhere. Were the Code's preparers to use any different language, the Code would be useless to its constituency of users. Consequently, in preparation of the Code, the expression is limited by the standard's language.

A further limitation on expression in functional works results from different products' need to interoperate. Interoperability is the "ability of a system . . . to work with or use the parts or equipment of another system."<sup>173</sup> Thus, the developer of the one system, be it data to be input into a database, or a computer program that must work on specified hardware must abide by the language dictated by a system with which it needs to interoperate. Failure to do so deprives the work of its functionality and renders it useless.

Consider, for instance, a computer program. The program must work on a given hardware platform and must interoperate with a multitude of other programs, operating systems, and applications. The criteria that limit a software developer's expression are numerous. They include, to mention just a few: the mechanical specifications of the computer on which the particular program is intended to run, compatibility requirements of other programs with which a program is designed to operate in conjunction, computer manufacturers' design standards, end-user technical requirements, industry programming practices, and practices and demands of the industry being served.<sup>174</sup>

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172. AMERICAN MEDICAL ASSOCIATION, CPT PROCESS—HOW A CODE BECOMES A CODE, <http://www.ama-assn.org/ama/no-index/physician-resources/3882.shtml>. *Am. Dental Ass'n*, 1996 U.S. Dist. LEXIS 5809 at \*12. Similarly, "[s]ince its first publication, the ADA has actively encouraged everyone in the Dental Industry to use the Code. To foster the ADA's stated goal of uniformity in dental coding, the ADA has consistently asked third parties, including Delta, to make their own Codes as similar as possible to the Code." *Id.* "[S]tandardization of language promotes interchange among professionals." *Am. Dental Ass'n*, 126 F.3d at 981.

173. Merriam-Webster Online Dictionary, <http://www.merriam-webster.com/dictionary/Interoperability> (last visited Oct. 16, 2009).

174. See *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366 (10th Cir. 1997). The parameters an interface establishes for the effective communication of information between one program and another constrain the design choices of subsequent programmers. Samuelson, *supra* note 4, at 218.

Once all the relevant criteria have been taken into consideration, the space for individuality is virtually nil<sup>175</sup> because a programmer's decisions "necessarily result from external factors inherent in the subject matter of the work."<sup>176</sup> Suggestions that "there is nearly limitless choice" in how to approach a programming task<sup>177</sup> have been referred to as a myth.<sup>178</sup> If these constraints are ignored, the methodology of evaluating copyright protection becomes flawed.<sup>179</sup>

Functional constraints on expression exist in other contexts as well, such as industry practices and norms,<sup>180</sup> government mandates,<sup>181</sup> or commercial reasons.<sup>182</sup>

## 2. Originality in Selection and Arrangement

The legal theory most frequently used to justify protectability of UIW is originality in the "selection and arrangement" of the data

175. In this setting the command codes of a hardware product "necessarily result from external factors inherent in the subject matter of the work." *Mitel*, 124 F.3d at 1375. In *Mitel*, a telecommunications equipment producer had developed a computer hardware and software for telephone applications, and published over sixty-four digit numeric command codes instructing how to program its hardware with the program codes. Competitor Iqtel, who manufactured its own hardware, realizing that it could compete with Mitel only if its hardware is compatible with Mitel's, programmed Mitel's command codes into its own controllers, translated into Iqtel's commands. Iqtel also published a manual cross referencing the two command codes. When Mitel claimed copyright protection for its codes, the court held the elements of the code to be "necessarily the result of external factors inherent in the subject matter of the work, and could not be protected by copyright." *Id.*

176. *Id.*

177. "[T]here is nearly limitless choice in how a particular data structure or algorithm is implemented . . . . A programmer has a choice from among many programming languages, each having a distinct idiom which may lend itself more or less readily to a particular programming task. . . . Within the confines of a single programming language and a given programming task, a programmer has great discretion as to how to structure and organize the code, how to comment the code, and how to format the code so it is comprehensible to other programmers. . . ." *Aharonian v. Gonzales*, No. C 04-5190 MHP, 2006 U.S. Dist. LEXIS 13, 77 U.S.P.Q.2D (BNA) 1449, 1453 (N.D. Cal. Jan. 3, 2006).

178. Suggesting that independent creation is based on the availability of "nearly limitless choice" is a myth. Reichman, *supra* note 32, n.246 (quoting Ronald S. Laurie & William A. Keefauver, *Protection of Computer Software* (American Group of A.I.P.P.I. Report Q57, 1989), *reprinted in* Arizona State University College of Law, Cases & Materials for LaST Frontier Conference on Software Protection 230, 233 (Feb. 13-14, 1989)).

179. Software remains an uneasy fit with copyright and has been viewed by many with skepticism. See Weinreb, *supra* note 88. Nonetheless, courts have found software protectable. *E.g.*, *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992).

180. *E.g.*, *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977 (7th Cir. 1997); see Samuelson, *supra* note 4, at 220.

181. Samuelson, *supra* note 4, at 220.

182. See *Telstra Corp. v. Desktop Mktg. Sys. Pty. Ltd.* (2001) 612 F.C.R. ¶ 19 (Austl.).



contained in work.<sup>183</sup> A judge-made theory of similar nature holds that originality can reside in the “judgment and expertise” in processing the data.<sup>184</sup> How can these theories be reconciled with the fact that expression of UIW is constrained by functionality?

Originality in selection and arrangement is premised on the fact that an author, in his discretion, “chooses which facts to include, in what order to place them, and how to arrange the collected data so that they may be used effectively by readers.”<sup>185</sup> If this process displays more than “a minimal degree of creativity,”<sup>186</sup> originality is present.

Some scholars have questioned whether the doctrine of “selection and arrangement” can ever be truly original.<sup>187</sup> Compilations are generally designed to perform a specific function. The selection and arrangement of the information contained in the compilation is simply a “system to carry out the compilation’s intended function”<sup>188</sup> and therefore dictated by the requirement of fulfilling that function.<sup>189</sup> In that case, the author’s expression is accordingly limited by the compilation’s functionality. A closer look at the doctrines of selection and arrangement individually lends support this view.

#### *a. Selection*

The act of selection involves identifying information suitable for inclusion in a compilation. Yet the value of a compilation of information lies, in most instances, in its comprehensiveness and exhaustiveness in light of the given purpose.<sup>190</sup> A provider of compilations does not have a great deal of discretion as to what data from a given body of information should be included.<sup>191</sup> For instance, there is no discretion in

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183. *E.g.*, 17 U.S.C. § 101 (defining compilations).

184. *CDN Inc. v. Kapes*, 197 F.3d 1256 (9th Cir. 1999) (quoting *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.*, 44 F.3d 61 (2d Cir. 1994)).

185. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 348 (1991).

186. *Id.*; *Karjala*, *supra* note 122, at 486.

187. The selection and arrangement doctrine is “often largely pretextual.” Ginsburg, *supra* note 36, at 340; *see also* L. Ray Patterson, *Copyright Overextended: A Preliminary Inquiry into the Need for a Federal Statute of Unfair Competition*, 17 U. DAYTON L. REV. 385 (1992).

188. Weinreb, *supra* note 88, at 1192. Because they are almost always constrained by functional considerations, “to treat these acts as authorship for computer databases is a fiction.” Patterson, *supra* note 187, at 394.

189. *See generally* Weinreb, *supra* note 88.

190. Ginsburg, *supra* note 36, at 345.

191. “[W]here functional considerations or commercial reasons limit the areas of discretion . . . there will be no ‘selection’ at all.” *Telstra Corp. v. Desktop Mktg. Sys. Party Ltd.* (2001) 612 F.C.R. ¶ 19 (Austl.).

selecting data for a phone directory because a directory must include the entire universe of individuals in the respective category, in this case subscribers.<sup>192</sup> Nor does it make sense to include some dental procedures into a comprehensive classification of dental procedures and to exclude others. If there is no discretion as to which facts should be included, does the creator have discretion as to which categories of data to include? Likely not, as the categories are dictated by the compilation's function. In other words, the creator must include those categories that will allow a user of the compilation to use it most effectively.

*b. Arrangement*

Arrangement does not allow for a great deal of discretion either. Compilations are created for a certain purpose, usually to satisfy the information need of a given group, on a given topic, and for a given purpose. Their measure of success is the usefulness of the target group in light of the intended purpose. Usefulness for a particular purpose turns on functional criteria such as alphabetical order for phone directories, physical and chemical properties in a chemical data database, regional arrangements, or arrangement by trade for yellow pages.<sup>193</sup> User-friendliness is an essential criterion for measuring the compilation's success. It derives from qualities such as predictability and an obvious and objectively intuitive arrangement. In short, arrangement is not an opportunity for the producer of the information to be arbitrary.

For instance, consider legal databases, such as Westlaw or Lexis.<sup>194</sup> The underlying material included in these databases consists to a large extent of judicial decisions that are in the public domain. The value of the compilation resides in its comprehensiveness, as it is critical for research that the entire universe representing a given category (e.g., all U.S. judicial decisions) be included.<sup>195</sup>

Selection in this setting could occur within the category (e.g., which federal cases to include) or at the level of which category to include. Selection within the category is automatic because comprehensiveness dictates inclusion of all decisions. When it comes to the decision of

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192. Karjala, *supra* note 122, at 363.

193. See Ginsburg, *supra* note 36, at 344.

194. See, e.g., *West Publ'g Co. v. Mead Data Cent., Inc.*, 799 F.2d 1219, 1226–27 (8th Cir. 1986) (copyright was granted to West's arrangement).

195. See *id.*

which category to include, the decision is an economic one: is the investment justified in light of consumer interest? In short, as to selection, there is little room for individual discretion.

The arrangement's goal is to make the database as user-friendly as possible (preferably more so than the competitor's) by creating categories that are intuitive and easily accessible based on (a) existing arrangements in the outside world, in the way one would find such books in a library: state court reporters, federal court reporters, law review articles, particular subject matters, (b) researchers' patterns of use: court decisions, secondary sources, legislation, and (c) cost considerations (e.g., access to certain segments of the database at lower cost).

In addition, legal resources databases may contain numerous other facilities that simplify the reader's task such as: star pagination system, hyperlinks to cross-references, search functions, or "quotation and cite." All of these functionalities are simply a "mechanical utility,"<sup>196</sup> which performs step-by-step implementations of the compilation's elements. These functionalities replicate a user's research process by means of software programs that automate the steps involved in order to save researchers time and effort. "To treat these acts as authorship for computer databases is a fiction,"<sup>197</sup> because the Lexis, Beck's Online, or Westlaw databases are in their entirety dictated by functional considerations. In this context, the argument that the selection and arrangement of such a database reflects the creator's subjective perception of reality may be hard to make.<sup>198</sup>

There is support for the argument that in function works, the creator's selection and arrangement of material is subordinated to the work's functionality and constrained by its rules.

### 3. Originality in Judgment and Expertise

In works of more complex nature, courts have found originality in the exercise of a creator's "professional judgment and expertise."<sup>199</sup> Creation of utilitarian works in a KBE usually requires a certain level of

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196. *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 819 (1st Cir. 1995).

197. Patterson, *supra* note 187, at 394.

198. *West Publ'g Co.*, 799 F.2d at 1226-27. Unless protectability is based on "labor and industry," in the post-*Feist* era the outcome might have been different.

199. Copyright protection granted "based not only on a multitude of data sources, but also on professional judgment and expertise." *CDN Inc. v. Kapes*, 197 F.3d 1256, 1261 (9th Cir. 1999) (quoting *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.*, 44 F.3d 61, 67 (2d Cir. 1994)).



qualification, training, and expertise, particularly so in more complex and specialized works. In many cases, a creator's exercise of professional judgment and expertise is construed as evidence of originality. Such a finding would then be justified by stating that the "judgment to distill and extrapolate from factual data gives rise to creativity."<sup>200</sup> This Section examines the nature of this doctrine in further detail.

In UIW, the exercise of judgment and expertise consists largely of a process of selecting, calculating, extrapolating, and evaluating information for communication to and use by others.<sup>201</sup> Stripped down to basics, these functions primarily involve two types of actions: "mechanical" work and "discretionary" decision making. The mechanical work follows pre-set rules and procedures and involves no discretionary component, regardless of the complexity of subject matter and rules and of the creator's level of expertise. No originality or individuality is associated with this type of activity. For instance, for a highly qualified mathematician, performing a calculation using a complex mathematical formula may be nothing but a mechanical task.

The decision-making component, on the other hand, may involve a certain amount of discretion. Many facts can only be estimated.<sup>202</sup> A professional may not "know" how to solve a given problem. However, she will provide her "best" professional judgment. By definition, a

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200. *CDN Inc.*, 197 F.3d at 1261. In *CDN*, the court granted copyright protection based not only on a multitude of data sources, but also on professional judgment and expertise. *Id.* The court found that "[t]he prices CDN creates are compilations of data that represent its best estimate of the value of the coins." *Id.* at 1260. In so doing, the court noted that

[w]hat is important is the fact that . . . CDN arrive at the prices they list through a process that involves using their judgment to distill and extrapolate from factual data. It is simply not a process through which they discover a preexisting historical fact, but rather a process by which they create a price which, in their best judgment, represents the value of an item as closely as possible. . . . Dealers looking through [raw data of historical facts of transactions] would have to use their own judgment and expertise to estimate the value of a coin. What CDN has done is use its own judgment and expertise in arriving at that value for the dealers.

*Id.* at 1261.

201. For instance, guided by the complexity of the facts involved in the work, a selection of 5,000 baseball cards out of a universe of 18,000. *Id.*; *Eckes v. Card Prices Update*, 736 F.2d 859 (2d Cir. 1984).

202. For instance, it would be difficult to imagine a court holding an estimated value of gravity to be a figure protected by copyright, even if some "judgment and expertise" went into its formulation. Alan Durham, *Speaking of the World: Fact, Opinion and the Originality Standard of Copyright*, 33 ARIZ. ST. L.J. 791 (2001) (quoting *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.*, 44 F.3d 61, 67 (2d Cir. 1994)).

“best” judgment is only one judgment. In other words, after weighing all factors involved—professional training, knowledge of the rules, experience culled from personal know-how and empiric observation, and the requirements of the product—the creator will select one option. The selection will be the one that, in her view, most effectively achieves the work’s intended functionality. In accordance with the “most effective expression” principle discussed above,<sup>203</sup> the creator’s discretion is therefore limited to a single choice, the most effective one.

One might argue here that the very fact that one person’s “best” judgment differs from that of another, is precisely the individuality copyright is seeking to reward. While this is in keeping with traditional copyright doctrine, such an author-focused approach does not ensure that the work’s functionality is achieved. The more productive approach for UIW is to focus on their purpose. Once the focus is directed to the work’s purpose, it becomes readily apparent that, in order for the work to accomplish the desired purpose, the creator’s discretion is limited by pre-determined, objective, external factors that must be complied with. But then one might ask, is a fiction writer’s product not also intended for a specific purpose, for instance, to cause sympathy or laughter in the reader? To answer this question, one must consider the fact that whether the work achieves the intended purpose such as to make the reader laugh or cry depends on the individual recipient’s subjective reaction, pre-disposition to humor, or mood at the time of reception. By contrast, a utilitarian work must predictably achieve its functionality, in accordance with pre-set objective criteria, every time, for every user, and under every circumstance. If it does not work, it is useless and therefore has no value.<sup>204</sup> On the other hand, an artistic work’s value lies not in the function it performs, but in the expression of the author’s personality. It would therefore retain its value regardless of whether it obtains the desired effect on the audience.

Finally, there is also the risk that in evaluating the copyrightability of judgment and expertise, courts mistake subject-matter complexity for originality. Because information works in a KBE involve a higher level of knowledge, they are often not transparent to the average layperson or to the courts. It is therefore easy to lose sight of the fact that, to a specialist in the field, calculating coin prices based on pre-determined

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203. See *supra* text accompanying notes 161–66.

204. “Functional works depend for their value primarily on the ingenuity, accuracy and efficiency—the utility—of their underlying system, concept or method.” 2 GOLDSTEIN, *supra* note 4, § 10.5, at 10:77.

formulae and extrapolating values from reported prices may be as mechanical and routine as the phone directory is to the layperson.

*C. Methodology—Use of Illusory Hypotheses as Evidence of Originality*

The functional constraints on expression discussed above make it difficult to evaluate the presence of originality. Evidence of the author's expressive discretion (originality) is often sought in expressive alternatives. In other words, the hypothesis that another creator could have made a different expressive choice would support the conclusion that originality is present.<sup>205</sup> In functional works these expressive alternatives are limited or non-existent. In applying the conventional analysis, courts may be forced to "invent" hypothetical alternatives, even though they are not and cannot be based on reality. Consider a simplified example: assume a form that contains data organized by five different criteria. The form is to be input into a data system that is set up to receive five data fields. The form's creator is constrained by the dictates of functionality to create a form with five criteria. A suggestion that he was free to produce a form based on four or six criteria is illusory.<sup>206</sup> Use of such illusory alternatives obscures the fact that the actual expression is the only one possible and that copyright protection, as a result, would monopolize the only means of expressing the idea.

One of the most telling instances of such illusory hypothetical alternatives is the decision in *American Dental Ass'n v. Delta Dental Ass'n*.<sup>207</sup> The ADA prepares and publishes a classification of procedures, its Code<sup>208</sup> to facilitate communication among dentists, patients, and insurance companies.<sup>209</sup> The Code is the product of laborious work by several committees, which have classified dental procedures into categories and assigned to each procedure an

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205. *Telstra Corp. v. Desktop Mktg. Sys. Party Ltd.*, (2001) 612 F.C.R. ¶¶ 26, 28 (Austl.) (considering evidence of the scope of possible choices for the expression at issue (in that case, headings of Yellow Pages directories), and sought "logical alternatives").

206. For instance, no discretion is involved in the compilation of categories for a pitching form, where "the public and the newspapers apparently have come to expect this standard order and most of the forms that include these four statistics list them in this very order." *Kregos v. Assoc. Press*, 731 F. Supp 113, 118 (S.D.N.Y. 1990), *rev'd* by 937 F.2d 700 (2d Cir. 1991) (denying protection to a pitching form, a decision subsequently reversed by the Court of Appeal).

207. *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977 (7th Cir. 1997).

208. The "Code" stands for Code of Dental Procedures and Nomenclature.

209. "The ADA encourages this use; standardization of language promotes interchange among professionals." *Am. Dental Ass'n*, 126 F.3d at 981.

identifying number.<sup>210</sup> Delta Dental modified and reprinted the classification without the ADA's authorization.

In evaluating the Code's protectability, the court considered whether the Code's author exercised discretion in classifying the dental procedures at issue, a fact that would denote originality.<sup>211</sup> Supporting evidence was sought in the existence of creative alternatives. The court noted that dental procedures could be classified, for instance, "by complexity, or by the tools necessary to perform them, or by the parts of the mouth involved, or by the anesthesia employed, or in any of a dozen different ways."<sup>212</sup> Other creative alternatives noted by the court were the fact that "the number assigned to any one of the three descriptions could have had four or six digits rather than five; [or that] guided tissue regeneration could have been placed in the 2500 series rather than the 4200 series."<sup>213</sup> According to the court, the availability of such hypothetical alternatives denotes discretion in devising the Code's overall structure and assigning numbers to given procedures, and amounts to the requisite originality to render the Code copyrightable.

Did the ADA Code developers have true creative discretion in structuring the classification? The evidence presented in the case indicated that "the choice of which categories to include, and correspondingly, which procedures to list under each category, is entirely dictated by standard practice and custom in dentistry. . . . [T]he organization of the Code merely restates the divisions of dentistry understood by the profession."<sup>214</sup> These circumstances leave little room

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210. In the Code "all dental procedures are classified into groups; each procedure receives a number, a short description, and a long description. For example, number 04267 has been assigned to the short description 'guided tissue regeneration—nonresorbable barrier, per site, per tooth (includes membrane removal),' which is classified with other surgical periodontic services." *Id.* at 977.

211. The Seventh Circuit criticized the District Court's analysis as inapplicable to this context, indicating that the district court mixes two different issues: originality and functionality. In the circuit court's opinion, the line to be drawn is "not a line between intellectual property and the public domain; it is a line among bodies of intellectual-property law." *Id.* at 980. This rather cursory remark merits questioning. The court implies that functionality would put a work beyond the realm of copyright and automatically within the realm of patent law. While functionality may be a line between patent and copyright law, it also operates as a limitation to copyright, regardless of a work's protectability under patent law. *Id.* For instance, the classes of works listed in 17 U.S.C. § 102(b) are all functional works, excluded from copyright law. *Am. Dental Ass'n*, 126 F.3d at 980.

212. *Id.* at 979.

213. *Id.*

214. *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 1996 U.S. Dist. LEXIS 5809, \*44; 39 U.S.P.Q.2D (BNA) 1714 (N.D. Ill. 1996). The creator's lack of discretion in describing the procedures is made evident by the deposition of an ADA employee, which indicates that for

for discretion. The suggestion that the Code's creator had discretion in setting up the classifications is therefore illusory.

Similarly, did the ADA Code developers have the freedom to determine the number of digits in the procedures' identifying numbers? The court suggested that placing a zero in front of the Code numbers and assigning six digits to the number was evidence of the Code developer's discretion. However, placing a zero in front of a number to allow for future supply of unused numbers is a standard procedure dictated by electronic data processing. If a system is programmed for six digits, the Code creators cannot use five.

Finally, the court found that placement of the "guided tissue regeneration" procedure in the 2500 series rather than the 4200 series displayed originality. In the context of the Code, the only acceptable placement of this or other procedures was in a location in which dentists would readily find them (i.e., in a location in which such procedures are ordinarily placed in accordance with the standards established in the industry).<sup>215</sup> The creator's choice in this regard is therefore illusory. In all of the above examples, the use of illusory alternatives does nothing to prove originality; to the contrary, closer scrutiny indicates that creative discretion is absent.<sup>216</sup>

*American Dental* is not an isolated instance.<sup>217</sup>

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purposes of the Code there was a single way of describing the procedures: "You can't split a procedure and call it two different things. It has to be a unique procedure. And there has to be no other ways [sic] to report it . . . if it's a composite, it's a composite. If it's an amalgam, it's an amalgam." *Id.* at \*39.

215. Exercising the freedom suggested by the court to assign procedures randomly would have rendered the Code useless.

216. *Am. Dental Ass'n*, 1996 U.S. Dist. LEXIS 5809 at \*39.

217. In Oberlandsgericht [OLG] [trial court for selected criminal matters and court of appeal] Jun. 19, 2001, 2002 Frankfurt a.M. Multimedia und Recht [MMR] 687 (F.R.G.), the external factors relevant to creation of the brick structure included political boundaries of the municipalities, postal codes, whether an urban or rural district is involved, communications structures, and geographical concentration of pharmacies and doctors' practices. The brick structure was developed with input from the pharmaceutical industry and required to interoperate with the clients' data processing system and was therefore determined by external factors. Case C-418/01, *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG Radio Telefis Eireann and Indep. Television Publ'ns Ltd. v. Comm'n of the European Cmty's.*, 2004 E.C.R. I-5039, ¶¶ 6, 15. Nonetheless, the court suggested that options, such as the different number of bricks used (IMS's structure had 1860 bricks and the competitor's 2201), constitute evidence of the discretion in selecting the number of bricks. The problem of this type of reasoning becomes apparent when the argument is followed to its logical extreme. While theoretically IMS could have built a system consisting of a different number of bricks, when the client's data system is built based on 1860 bricks, only a system with 1860 bricks will satisfy the need. A system with any other number of bricks is useless. In reality, neither IMS nor its competitors had any discretion in creating the structure because it



#### D. Ramifications of the Use of Faulty Methodology

What are the consequences of holdings based on faulty premises such as the ones discussed above? Are the results obtained in these cases consistent with the policy concerns underlying copyright law?

In *Bedienungsanweisung*, graphic instructions for a motorized saw were held protectable.<sup>218</sup> This Section will consider the impact on the stakeholders involved.

The right holder is the prevailing party. This is not merely because the right holder has prevailed on its copyright claim, but because by doing so, it has also successfully excluded a competitor from importing motorized saws. The finding of copyrightability precludes the defendant-competitor from using the information necessary to operate the saw. The information is necessary to prepare use instructions. Without instructions, the saws cannot be sold; consequently, the defendant is effectively excluded from the market. The cost of the right holder's success is borne by the other two stakeholders, the defendant-competitor and the public. Were the defendant to attempt to re-create the instructions, sales would be lost during the time required to do so. Re-creation of the instructions is an economically inefficient use of resources, given the fact that the instructions already exist. The cost associated with the re-creation would be passed on to consumers. Finally, the consumer would lose a source of lower priced products.

Consequently, the net effect of the finding of copyrightability by the *Bedienungsanweisung* court is that (1) information in its most fluid form<sup>219</sup> is prevented from circulating, (2) the right holder receives a benefit that exceeds the intended scope of the exclusive rights under copyright law and is objectionable under European competition law,<sup>220</sup> and (3) consumers are adversely impacted through loss of an alternative

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was determined by outside factors. Similarly, in *Key Publications v. Chinatown Today Publishing Enterprises*, 945 F.2d 509, 513 (2d Cir. 1991), a post-*Feist* case, protectability was based on evidence of originality that relied on two aspects of the selection: (1) exclusion of businesses that would soon close were excluded from the directory and (2) selection of businesses that were of particular interest to Chinese Americans. Yet the selection was dictated by the needs of Chinese-American business community, to whom the directory was addressed. *Id.*

218. Bundesgerichtshof [BGH] [Federal Court of Justice] 1993 Gewerblicher Rechtsschutz und Urheberrecht [GRUR] 34 (F.R.G.).

219. E.g., in an accessible form. It may have required the defendant to reverse engineer the machine in order to obtain the information necessary to prepare the instructions.

220. Treaty establishing the European Community (EC Treaty), art. 81, Mar. 25, 1957 (abuse of dominant position); Joined cases C-241/91 P and C-242/91 P, *Radio Telefis Eireann and Indep. Television Publn's Ltd. v. Comm'n of the European Cmty*, 1995 E.C.R. I-743.

source of product and potential price increases.

On the other hand, this ruling promotes no copyright policy interests. Holding the instructions copyrightable does not give rise to an incentive to create to either the right holder or the designer. Their economic gain is derived from marketing the tangible product, not from creating the instructions.<sup>221</sup>

What caused this overall debacle? The result is attributable to faulty methodology: evaluation of a functional work through the lens of originality. Originality looks for subjective diversification. Absent true diversification, evidence of an illusory reality was used to justify originality. As to the broader economic impact (e.g., on the other stakeholders), copyright law is blind. Overall, the result is flawed, and its ramifications go far beyond copyright law. The conclusion is that copyright protection of UIW can produce undesirable economic results.

### *E. Authorship, Innovation, and Creativity*

If, however, copyright were denied to UIW, would that not imply that creators of UIW are less “creative” than creators of non-utilitarian works? Surely a developer of an ingenious software patch that elegantly fixes a critical bug would be offended by the claim that creating a utilitarian work is less creative than one who creates an artistic work.

Creativity is a multifaceted term. It encompasses all types of human creation, regardless of whether the creator is limited by external objective considerations or by personal subjective ones.<sup>222</sup> Creativity is defined as a mental process in the course of which new associations between existing ideas or concepts are made and new ideas or concepts are generated.<sup>223</sup> When the result of a creative process is a product of

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221. While the designer is in fact compensated for creation of the instructions, such compensation is contingent on the sale of the saws. It does not operate as an independent incentive to create.

222. An interesting distinction between “creation,” properly protected under copyright law and “quasi-creation,” low creativity efforts that require protection under different theories, is made by MIREILLE BUYDENS, *LA PROTECTION DE LA QUASI-CREATION* (1997) cited in Christophe Geiger, *Flexibilizing Copyright: Remedies to the Privatization of Information by Copyright Law*, 39 IIC: INT’L REV. INTELLECTUAL PROP. COMP. L. 179 (2008); see generally Teresa Amabile, *How to Kill Creativity*, HARV. BUS. REV., Sept.–Oct. 1998, at 76.

223. Creativity is defined as the “ability to make or otherwise bring into existence something new, whether a new solution to a problem, a new method or device, or a new artistic object or form.” Encyclopaedia Britannica, [www.britannica.com](http://www.britannica.com) (last visited Oct. 13, 2009). “Creativity is a mental and social process involving the generation of new ideas or concepts, or new associations of the creative mind between existing ideas or concepts.” Wikipedia, *Creativity*, <http://en.wikipedia.org/wiki/Creativity> (last visited Sept. 11, 2009);

practical utility, we can speak of “utilitarian creativity.” This is the type of creativity that underlies innovation for purposes of scientific and technological advances. Its goal is to respond to objective needs by combining information in a way that creates new and useful products, devising functional solutions to practical problems, and generally, by making things work. The external objective constraint of having to make things work, in turn, limits the creator’s expression.<sup>224</sup> While a creator in this setting will follow her subjective creative intuitions in the same manner as the one who creates a non-utilitarian work, she must also ensure that these intuitions abide by the objective constraints of the work’s functionality.<sup>225</sup>

Conversely, when the result of the creative process has little to do with practical utility, and instead addresses an audience’s aesthetic sense and emotions, it might be referred to as “artistic creativity.”<sup>226</sup> Here, the creator’s freedom is limited primarily by her own subjective considerations, rather than by external (technological) requirements. Thus, unlike the utilitarian creator, the artistic creator has considerable leeway to follow subjective intuitions, without having to answer to objective constraints. Accordingly, it is not unreasonable to conclude that creativity involved in a functional work “is of a different order from that involved in producing a work of art or literature.”<sup>227</sup>

The difference has been neatly summed up by saying that *originality* is a sufficient condition for non-utilitarian (artistic) creativity, whereas *both originality and appropriateness* (in other words, following the dictates of functional constraints) are required for utilitarian

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“Creativity, as has been said, consists largely of rearranging what we know in order to find out what we do not know.” GEORGE F. KNELLER, *THE ART AND SCIENCE OF CREATIVITY* 59 (1965).

224. See generally Peter Menell, *Can Our Current Conception of Copyright Law Survive the Internet Age? Envisioning Copyright Law’s Digital Future*, 46 N.Y.L. SCH. L. REV. 63 (2003); “Creativity is the ability to produce work that is novel (i.e., original, unexpected), high in quality, and appropriate (i.e., useful, meets task constraints).” ROBERT J. STERNBERG ET AL., *THE CREATIVITY CONUNDRUM: A PROPULSION MODEL OF KINDS OF CREATIVE CONTRIBUTIONS* 1 (2002).

225. Technological creativity is not devoid of “aesthetic” considerations (that which mathematicians have called “beauty,” “elegance,” etc.), but one must keep in mind that these subjective intuitions must ultimately answer to objective tests. Steven Harnad, *Creativity: Method or Magic?*, Cognitive Sciences Centre, Department of Psychology, University of Southampton, UK, (June 19, 2001), available at <http://www.ecs.soton.ac.uk/~harnad/Papers/Harnad/harnad.creativity.html>.

226. *Id.*

227. *Telstra Corp. v. Desktop Mktg. Sys. Party Ltd.* (2001) 612 F.C.R. ¶ 23 (Austl.). The same court noted that dealing with the commercial implications of an expressive choice is an effort that “has nothing to do with copyright.” *Id.* at ¶ 29.

creativity.<sup>228</sup> The condition of originality has been discussed earlier. The appropriateness condition resembles the type of creativity found in patentable inventions, where the creator's discretion is also severely limited by functionality.

Should this distinction affect the calculus of copyright protectability and raise the threshold of protection to exclude works of utilitarian nature?<sup>229</sup> If so, copyright protection would be limited to artistic works. Hypothetically, such a policy could be expressed by taking the *Feist* standard one step further to require "a minimum of artistic creativity." Utilitarian creativity would then implicitly fall into the category of "practically inevitable" expression and be excluded in the same manner as a telephone directory under *Feist*.

Despite its superficial appeal, this option does not provide a principled solution. The approach would remain author-centric, in that only the input side would inform the evaluation of protectability. In other words, originality, even though at a higher threshold, would remain the measure of protectability. An input-only evaluation would miss the work's functionality and would perpetuate the blindness of traditional copyrightability analysis to the concerns of non-author stakeholders.

## PART IV

### CONCLUSION

Because copyright law effectively functions as gatekeeper of information in the KBE, copyright protection, if improperly applied, risks impeding the flow of information and adversely impacting innovation. It is therefore necessary to re-evaluate the relationship of copyright law and UIW to ensure a predictable flow of information, adequate to the needs of the KBE.

This discussion has shown that the relationship between UIW and copyright law has been an uneasy one. Copyright law is intended to encourage expression of subjective imagination by rewarding

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228. Originality is a sufficient condition for artistic creativity, whereas both originality and appropriateness are required in other fields. Amabile, *supra* note 222.

229. A UIW (here a component of a software program) "has a mechanical utility, an instrumental role, in accomplishing the world's work. Granting protection, in other words, can have some of the consequences of *patent* protection in limiting other people's ability to perform a task in the most efficient manner. Utility does not bar copyright...but it alters the calculus" in that the stakes are higher. *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 819 (1st Cir. 1995).

diversification through individuality. UIW, on the other hand, are governed by the rules dictated by their functionality. Their creation demands uniformity and conformity. As a result, originality, the measure of protectability of copyright law, is an uneasy fit for UIW.

This tension has caused scholars and courts to struggle with copyright protectability of UIW. The standards applicable to fact-intensive works have hovered both above and below the line of protectability, without very clear guidance as to whether and under what circumstances fact-intensive works, such as UIW, are protectable. The limitations on protection of ideas and facts are of limited effectiveness. There is no generally applicable exclusion for functional works.

The main reason for the tension between the doctrine of originality and UIW is that creation of UIW is subject to constraints on expression. Rather than allow fancy and imagination to flow free, the creator of a functional work must follow the work's "blueprint" to ensure that it can fulfill its functionality. Constraints on expression can be inherent in the work or imposed by external conditions, such as standardization or interoperability requirements. It is argued that the principle of "the most effective expression" requires the creator to select the expressive choice that best achieves the work's optimal functionality. The doctrines of originality in selection and arrangement and judgment and expression, which most often form the basis for copyrightability of UIW, are subject to similar constraints on expression. The acts of selection, arrangement, and exercise of judgment and expertise are all geared to creation of utilitarian works that have an objectively defined function. It is therefore posited that, in most instances, these doctrines do not reflect true originality.

For courts it is a challenge to seek subjective expression in a work whose expression is constrained by objective rules. The analytical method employed by many courts to evaluate originality is identification of hypothetical expressive alternatives. In UIW, such alternatives are, for the most part, nonexistent. In an effort to make UIW fit the mold of conventional copyright analysis, courts have therefore resorted to the use of illusory hypothetical expressive alternatives. This methodology is flawed. It merely serves to demonstrate that expressive choices are nonexistent. In such cases, the requisite originality is lacking, or, at a minimum, protection should be precluded by the merger doctrine. Under German law, expression that



is dictated by the nature of things, or is pre-determined by logic or a particular purpose, is equally not protectable.<sup>230</sup>

An incorrect finding of copyrightability can have ramifications far beyond the interests of the litigants. Such a finding can impact the free flow of information, necessary for innovation and adversely affect competition in the marketplace.

This conclusion places into question the applicability to UIW of the originality standard in its present form. However, a comprehensive, implementable solution to the problem of copyright law's incompatibility with UIW and resulting ineffectiveness as gatekeeper of information requires additional questions to be answered.

Initially, any specifically tailored solution for UIW must be able to clearly differentiate UIW from non-UIW. This is necessary because, as discussed above, in the presently accepted conception of the term, creativity can be found in non-UIW as well. Therefore, utilitarian creativity must be differentiated from the non-utilitarian creativity that is more appropriate for copyright protection. Once differentiation has been resolved, an appropriate treatment for UIW must be devised.

Venturing into largely uncharted territory, in one alternative UIW could be subject to stronger scrutiny as to the economic impact of copyrightability. This approach could help alleviate anti-competitive conduct enabled by copyright protection.

Alternatively, procedural methods could be used to avoid the current all-or-nothing outcome of copyright disputes. If all parties to a dispute are in the end granted some form of access to the underlying information, the free flow of information would not be jeopardized.

Finally, UIW could be exempt from copyright protection altogether. However, if so, how is the creator to be compensated? Do UIW constitute a category of works for which a specifically tailored *sui generis* protection method would be appropriate? This option would preserve the incentive mechanism.

In the final analysis, whether by way of the options discussed above, or otherwise, a solution will have to be found to the question whether and to what extent copyright can effectively act as a knowledge management mechanism in the KBE.

As the KBE advances, solving the problem becomes increasingly pressing.

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230. SCHRICKER, *supra* note 39, § 4, Rn.9.